



## Board of Directors

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### **Meeting Date**

**December 17, 2021**



## Board of Directors

<b>Lonnie Reed</b> Chair	<b>Vickie Hackett</b> Vice Chair Connecticut Department of Energy and Environmental Protection (DEEP)
<b>Matthew Ranelli</b> Secretary Partner Shipman & Goodwin	<b>Sarah Sanders</b> State Treasurers Office State of Connecticut
<b>Thomas Flynn</b> Managing Member Coral Drive Partners	<b>Binu Chandy</b> Deputy Director DECD
<b>Adrienne Farrar Houel</b> President and CEO Greater Bridgeport Community Enterprises, Inc.	<b>Dominick Grant</b> Director of Investments Dirt Capital Partners
<b>John Harrity</b> Chair CT Roundtable on Climate and Jobs	<b>Brenda Watson</b> Executive Director Operation Fuel
<b>Jeff Beckham</b> Office of Policy and Management (OPM)	<b>Laura Hoydick</b> Mayor of Stratford



December 10, 2021

Dear Connecticut Green Bank Board of Directors:

We have a meeting of the Board of Directors scheduled for **Friday, December 17, 2021 from 9:00-11:00 a.m.**

Please take note that this will be an online meeting.

For the agenda, we have the following:

- **Consent Agenda** – we have several items on the consent agenda, including a few items requiring resolutions, including:
  - Meeting Minutes for October 22, 2021
  - Revised Operating Procedures
  - Vice President of Operations Position Description
  - FuelCell Energy Groton Project extension to close

And a report out on Inclusive Prosperity Capital (“IPC”), the nonprofit organization we created with the support of the Connecticut Department of Energy and Environmental Protection (“DEEP”) and the Kresge Foundation.

- **Incentive Program Updates and Recommendations** – we will provide an update on the status of the Residential Solar Investment Program (“RSIP”), including the 3G meter issue, as well as a recommendation for approval of Energy Storage Solutions (“ESS”), the battery storage incentive program we have been working on for the past two (2) years. Please do review the documents attached for the background on ESS – this is an exciting next step evolution from the RSIP as we work to foster the sustained orderly development of a local battery storage industry.
- **Financing Program Updates and Recommendations** – we will provide an update and recommendation to extend the Small Business Energy Advantage (“SBEA”) program for an additional three (3) months so we can work out final details on a program expansion with our capital provider.
- **Investment Updates and Recommendations** – we will provide a recommendation to increase the investment in and expand the scope of our relationship with Skyview Ventures to include projects that support battery storage, with a focus on gaps in the market (e.g., vulnerable communities, resilience).
- **Environmental Infrastructure Program Updates** – we will provide an update on the process to develop a Comprehensive Plan for environmental infrastructure to be completed for FY 2023.

- **Other Business** – as a follow-up to the FY21 Annual Comprehensive Financial Report presented at the October meeting, where we focused on the financial statistics, this meeting we will have Monica Reid from Kestrel Verifiers speak to our non-financial statistics audit (see Page 101).<sup>1</sup> We have included a copy of our decennial social impact report in the mailing. And, just an FYI, we have included several local (i.e., Hartford Courant) and national (i.e., New York Times) articles on climate change adaptation and vulnerable communities.

We are looking forward to closing out another calendar year and looking towards a restful, enjoyable, and safe holiday season.

If you have any questions, comments or concerns, please feel free to contact me at any time.

Until then, enjoy the weekend.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bryan Garcia', with a long horizontal stroke extending to the right.

Bryan Garcia  
President and CEO

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<sup>1</sup> <https://www.ctgreenbank.com/wp-content/uploads/2021/11/FY21-CGB-ACFR-Final-11.08.21.pdf>



## **AGENDA**

Board of Directors of the  
Connecticut Green Bank  
75 Charter Oak Avenue  
Hartford, CT 06106

Friday, December 17, 2021  
9:00 a.m.– 11:00 p.m.

Dial (571) 317-3112  
Access Code: 931-083-237

Staff Invited: Sergio Carrillo, Mackey Dykes, Brian Farnen, Bryan Garcia, Bert Hunter, Jane Murphy, and Eric Shrago

1. Call to order
2. Public Comments – 5 minutes
3. Consent Agenda – 5 minutes
4. Incentive Programs Updates and Recommendations – 45 minutes
  - a. Residential Solar Investment Program
  - b. Energy Storage Solutions Program
5. Financing Programs Updates and Recommendations – 15 minutes
  - a. Small Business Energy Advantage (SBEA) Program – Extension
6. Investment Updates and Recommendations – 15 minutes
  - a. Skyview Ventures – Additional Investment
7. Environmental Infrastructure Program Update – 5 minutes
8. Other Business – 15 minutes
9. Adjourn

Join the meeting online at  
<https://global.gotomeeting.com/join/931083237>

Or call in using your telephone:

Dial (571) 317-3112

Access Code: 931-083-237

***Next Regular Meeting: Friday, January 21, 2022 from 9:00-11:00 a.m.  
Colonel Albert Pope Room at the  
Connecticut Green Bank, 75 Charter Oak Avenue, Hartford***



## **RESOLUTIONS**

Board of Directors of the  
Connecticut Green Bank  
75 Charter Oak Avenue  
Hartford, CT 06106

Friday, December 17, 2021  
9:00 a.m.– 11:00 p.m.

Dial (571) 317-3112  
Access Code: 931-083-237

Staff Invited: Sergio Carrillo, Mackey Dykes, Brian Farnen, Bryan Garcia, Bert Hunter, Jane Murphy, and Eric Shrago

1. Call to order
2. Public Comments
3. Consent Agenda

### **Resolution #1**

Motion to approve the meeting minutes of the Board of Directors form October 22, 2021.

### **Resolution #2**

**RESOLVED**, that the Board of Directors of the Connecticut Green Bank approves the revisions to the Operating Procedures.

### **Resolution #3**

Motion to approve the position description for Vice President of Operations

**RESOLVED**, that the Board of Directors of the Connecticut Green Bank approves the revisions to the Operating Procedures.

### **Resolution #4**

**WHEREAS**, in accordance with (1) the statutory mandate of the Connecticut Green Bank (“Green Bank”) to foster the growth, development, and deployment of clean energy sources that serve end-use customers in the State of Connecticut, (2) the State’s Comprehensive Energy Strategy (“CES”) and Integrated Resources Plan (“IRP”), and (3) Green Bank’s Comprehensive

Plan (the “Comprehensive Plan”) in reference to the CES and IRP, Green Bank continuously aims to develop financing tools to further drive private capital investment into clean energy projects;

**WHEREAS**, FuelCell Energy, Inc., of Danbury, Connecticut (“FCE”) has used previously committed funding (the “Bridgeport Loan”) from Green Bank to successfully develop a 15 megawatt fuel cell facility in Bridgeport, Connecticut (the “Bridgeport Project”), and FCE has operated and maintained the Bridgeport Project without material incident, is current on payments under the Bridgeport Loan;

**WHEREAS**, FCE has requested financing support from the Green Bank to develop a 7.4 megawatt fuel cell project in Groton, Connecticut located on the U.S. Navy submarine base and supported by a power purchase agreement (“PPA”) with the Connecticut Municipal Electric Energy Cooperative (“CMEEC”) (the “Navy Project”);

**WHEREAS**, staff has considered the merits of the Navy Project and the ability of FCE to construct, operate and maintain the facility, support the obligations under the Loan throughout its 20-year term, and as set forth in the due diligence memorandum (the “Board Memo”) dated December 18, 2020, recommended this support be in the form of a term loan not to exceed \$8,000,000, secured by all project assets, contracts and revenues as well as a pledge of revenues from an unencumbered project as explained in the Board Memo (the “Credit Facility”);

**WHEREAS**, on the basis of that recommendation, the Green Bank Board of Directors (“Board”) approved of the Credit Facility, in an amount not to exceed \$8,000,000 with the provision that the Credit Facility be executed no later than 315 days from the date of authorization by the Board (June 16, 2021) which was further extended by the Board in July 2021 to October 29, 2021 and which was further extended by the Board in October 2021 to December 31, 2021;

**WHEREAS**, Green Bank has further advised the Board that the Credit Facility is now expected to close within the next 60 days and to accommodate the additional time needed to execute the Credit Facility requests the permitted time to execute the credit facility be increased from not later than 378 days from the original date of authorization by the Board (December 31, 2021) to not later than 409 days from the date of authorization by the Board (i.e., to January 31, 2022);

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board hereby approves the extension of time for the execution of the Credit Facility to not later than 409 days from the original date of authorization by the Board (i.e., not later than January 31, 2022); and

**RESOLVED**, that the President of the Green Bank and any other duly authorized officer is authorized to take appropriate actions to provide the Credit Facility to FCE (or a special purpose entity wholly-owned by FCE) in an amount not to exceed \$8,000,000 with terms and conditions consistent with the memorandum submitted to the Board dated December 18, 2020 (the “Memorandum”), and as he or she shall deem to be in the interests of the Green Bank and the ratepayers; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents and instruments as they shall deem necessary and desirable to effect the Term Loan and participation as set forth in the Memorandum.



4. Incentive Programs Updates and Recommendations
  - a. Residential Solar Investment Program
  - b. Energy Storage Solutions Program

**Resolution #5**

**WHEREAS**, pursuant to Public Act 21-53 (attached hereto as Appendix A) and §§ 16-11 and 16-244i of the General Statutes of Connecticut Per and as implemented through the Public Utilities Regulatory Authority (“PURA”) Docket No. 17-12-03RE03 “PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage” (“the Docket”) requires the Connecticut Green Bank (“Green Bank”) together with Eversource and United Illuminating (“EDCs”) to design, implement and administer a behind-the-meter storage program (the “Program”) that results in a minimum of five hundred and eighty (580) megawatts of new residential and non-residential electric storage installation in Connecticut before December 31, 2030.

**WHEREAS**, pursuant to the Final Decision of the Docket issued December 8, 2021 (attached hereto as Appendix B, the “Final Decision”), PURA ordered the Green Bank and the EDCs (the “Program Administrators”) to jointly administer the Program (Green Bank to administer the upfront incentive portion of the Program and be responsible for Program communication and promotion; EDCs to administer the performance incentive and the active dispatch portions of the Program; and together the Program Administrators will develop the appropriate program documents necessary to effectively implement the Program beginning January 1, 2022) pursuant to which the Green Bank has prepared the Program Manual (attached hereto as Appendix C) to offer direct financial incentives, in the form of upfront incentives for qualifying electric storage systems and Marketing Plan (attached hereto as Appendix D) to achieve the goals of customer enrollment, marketing & outreach, data aggregation & reporting, and evaluation, measurement & verification.

**WHEREAS**, pursuant to the Final Decision the Green Bank has prepared a declining incentive block schedule (“Schedule”) for the first three-year cycle of the Program that: (1) provides for a series of storage capacity blocks the combined total of which shall be a minimum of 100 megawatts of new electric storage installation in Connecticut before December 31, 2024 and projected incentive levels for each such block; (2) provides incentives (the “Incentives”) that are sufficient to meet reasonable payback expectations of residential and non-residential consumers; and (3) provides incentives that decline over time and will foster the sustained, orderly development of a state-based storage industry.

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors (the “Board”) hereby approves the Program Manual and Marketing Plan substantially in the form attached in as Appendix C and Appendix D, respectively.

**RESOLVED**, the Board directs the Green Bank to submit the proposed Program Manual to PURA pursuant to the Draft Decision in Docket No. 21-08-05.

**RESOLVED**, that the Board approves the Green Bank participation in Energy Storage Solutions as a Program Administrator, which is expected to be cost recovered pursuant to the Final Decision.

**RESOLVED**, that this Board action is consistent with Public Act 21-53 and PURA Dockets No. 17-12-03RE03 & Docket No. 21-08-05.

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect these Resolutions.

5. Financing Programs Updates and Recommendations

a. Small Business Energy Advantage (SBEA) Program – Extension

**Resolution #6**

**WHEREAS**, the successful Connecticut Green Bank (Green Bank), Eversource Energy and Amalgamated Bank Small Business Energy Advantage (SBEA) financing facility, pursuant to that certain Second Amended and Restated Master Purchase and Servicing Agreement dated September 30, 2020 (“MPA”), will expire on December 20, 2021;

**WHEREAS**, the parties expect to agree to terms to extend and expand the MPA in early 2022; and

**WHEREAS**, a short-term extension of the MPA is necessary to maintain loan servicing and additional loan purchases until final terms are reached

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors authorizes the Green Bank to extend the MPA under the existing terms for up to six months; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and negotiate and deliver all other documents and instruments as they shall deem necessary and desirable to effect the above-mentioned legal instruments.

6. Investment Updates and Recommendations

a. Skyview Ventures – Additional Investment

**Resolution #7**

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) has significant experience in the development and financing of commercial solar power purchase agreement (“PPA”) projects in Connecticut;

**WHEREAS**, the Green Bank Board of Directors (the “Board”) approved at its meeting held on

March 25, 2020 a senior secured loan facility (“Original Term Loan”) transaction with a Skyview Ventures special purpose vehicle (“Skyview”) in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Original Term Loan transaction. The Original Term Loan was first expanded to \$3.5M, and then to \$7M (the (Existing Term Loan”), as approved by the Board at its meetings on April 24 and October 23, 2020, respectively;

**WHEREAS**, as of November 2021, approximately 70% of the Existing Term Loan commitment has been advanced to finance PPA projects;

**WHEREAS**, in light of the financial incentives available (starting 2022) for the deployment of energy storage solutions (“ESS”) projects, Skyview is developing a pipeline of ESS projects in CT; and

**WHEREAS**, given the rate of utilization of the Existing Term Loan by Skyview for Skyview PPA projects, and the opportunity to develop ESS projects, following diligence of Green Bank staff, Green Bank staff proposes increasing the Existing Term Loan size and amending its terms to allow for ESS project financing, and requests Board approval.

**WHEREAS**, the Green Bank Deployment Committee recommended that the Board approve of the staff’s request to amend and restate the Board’s existing approval of the Existing Term Loan transaction as described in the Project Qualification Memo submitted by the staff to the Deployment Committee and dated November 12, 2021 (the “Deployment Committee Memorandum”)

**NOW**, therefore be it:

**RESOLVED**, that the Board approves staff’s request to amend and restate the Board’s existing approval of the Existing Term Loan transaction as described in the “Deployment Committee Memorandum and consistent with the memorandum to the Board dated December 10, 2021 (the “Memorandum”) to include ESS projects to be qualified for future advances within the increased limit of \$10,000,000 on terms and conditions substantially consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Existing Term Loan transaction.

7. Environmental Infrastructure Program Update
8. Other Business
9. Adjourn

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# ANNOUNCEMENTS

- **Mute Microphone** – in order to prevent background noise that disturbs the meeting, if you aren't talking, please mute your microphone or phone.
- **Chat Box** – if you aren't being heard, please use the chat box to raise your hand and ask a question.
- **Recording Meeting** – we continue to record and post the board meetings.
- **State Your Name** – for those talking, please state your name for the record.



CONNECTICUT  
**GREEN BANK** SM

# Board of Directors Meeting

December 17, 2021

**Online Meeting**

# Board of Directors

## Agenda Item #1

### Call to Order

# Board of Directors

## Agenda Item #2

### Public Comments



Board of Directors  
Agenda Item #3  
Consent Agenda

# Consent Agenda

## Resolutions #1 through #4

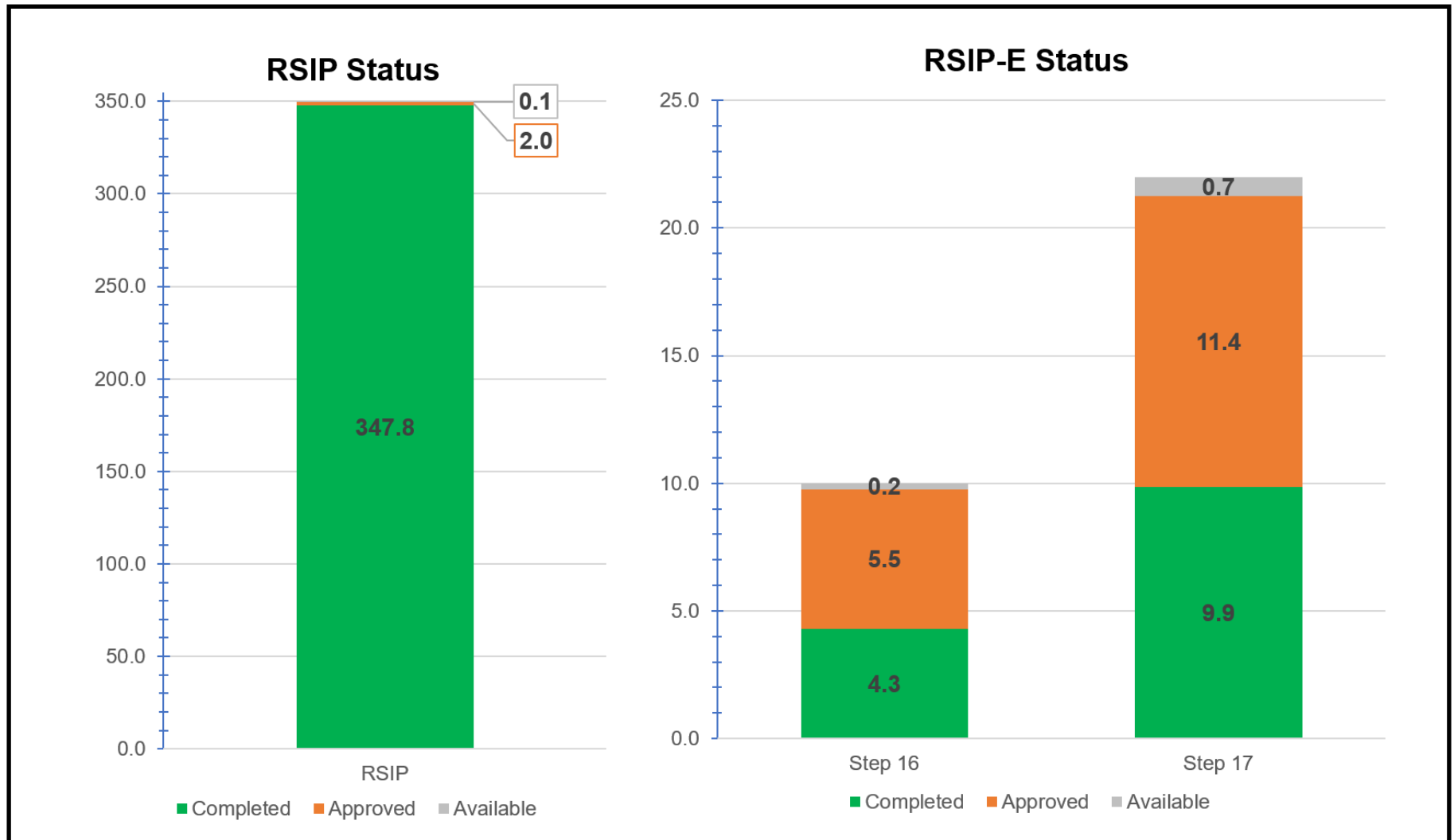


1. **Meeting Minutes** – approve meeting minutes of October 22, 2021
2. **Operating Procedures** – as recommended by the ACG Committee and tentatively approved by the BOD subject to public comment process
3. **Position Description** – position descriptions Director-level and above have to be approved by the BOD...I am promoting Eric Shrago, Managing Director of Operations
4. **FuelCell Energy Project** – extension of time to close the project by January 31, 2022
  - **Inclusive Prosperity Capital (“IPC”)** – update on tax equity investor, Greenprint Capital, and creation of new legal entities

Board of Directors  
Agenda Item #4a  
Incentive Programs  
Residential Solar Investment Program (“RSIP”)

# RSIP & RSIP-E Status

As of 12/13/2021



# RGM Replacements

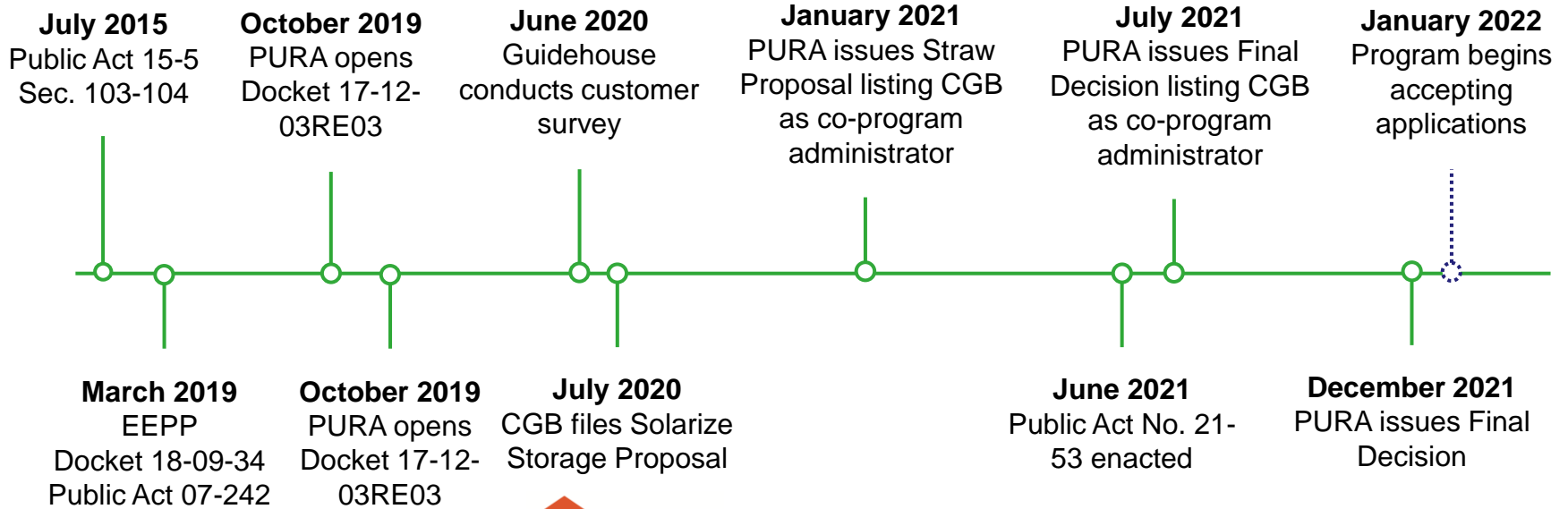
As of 12/13/2021



1. **Meter replacement** – identified 4,976 homeowner-owned RGM to be replaced.
  - 639 replacements completed (13%)
  - 168 priority meters completed (21%)
  - Meter replacements continue despite equipment shortages
  
2. **Anticipated AT&T 3G shutdown** – March 1, 2022
  
3. **Solar PV Production Data Estimation** – Prof. Ken Gillingham
  - Methodology presented to NEPOOL-GIS Markets Committee
  - Anticipate a Rule Change approval in January, 2022

Board of Directors  
Agenda Item #4b  
Incentive Programs  
Energy Storage Solutions

# Timeline



- 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
<b>Total</b>	<b>100 MW</b>	<b>200 MW</b>	<b>280 MW</b>	<b>580 MW</b>



## Benefits

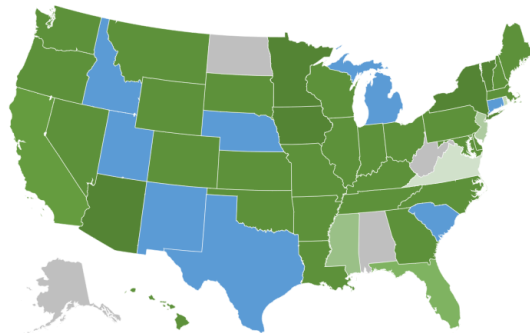
1. **Cost-Effectiveness** – ensure there is net benefit to electric customers
2. **Resilience** – maximize the deployment of battery storage to improve the overall resilience of the participants and the grid
3. **Serve Vulnerable Communities** – deploy no less than 40 percent of residential installations in vulnerable communities (e.g., low income, distressed, affordable housing)
4. **Economic Development** - foster the sustained orderly development of a local battery storage industry

# Benefit Cost Analysis Tests

A systematic approach to assess cost-effectiveness across multiple perspectives






Primary BCA Test by State

- na
- SCT
- TRC
- TRC, UCT
- UCT
- RIM
- TRC, PAC, PTC, RIM
- TRC, PCT
- State-specific test
- Multiple tests



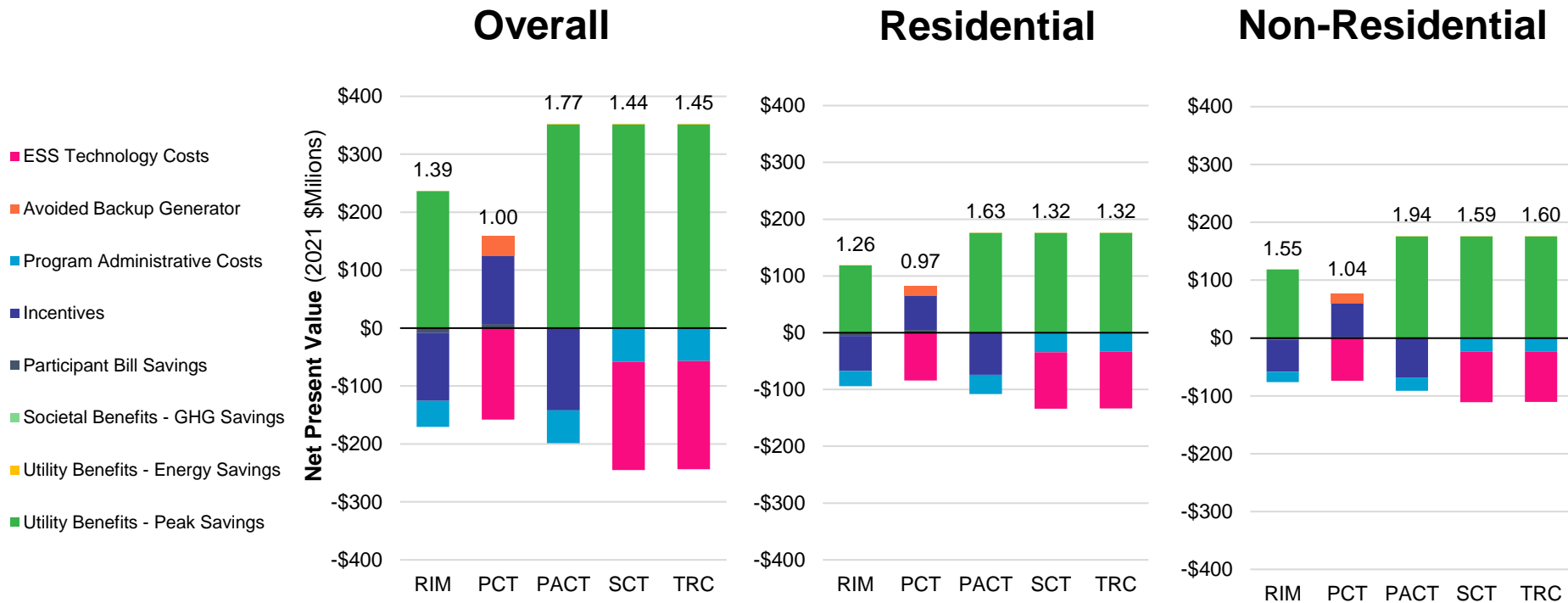
Database of State Efficiency Screening Practices (DSESP) Powered by Bing © GeoNames, HERE, MSFT

Source: NESP, *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources*, August 2020

	<b>Program Administrator Cost Test<sup>1</sup></b>	<i>Are program administrators better off?</i>
	<b>Participant Cost Test</b>	<i>Are participants better off?</i>
	<b>Societal Cost Test</b>	<i>Is the state of Connecticut better off?</i>
	<b>Total Resource Cost</b>	<i>Is this a positive cash investment?</i>
	<b>Rate Impact Measure</b>	<i>Is this likely to reduce costs to electric ratepayers?</i>

<sup>1</sup> AKA Utility Cost Test, for programs administered solely by utilities. This analysis considers the PACT for three perspectives: the passive dispatch portion of the Program, the active dispatch portion of the Program, and the combined active + dispatch Program.

# BCA-Led Program Design



# Program Design



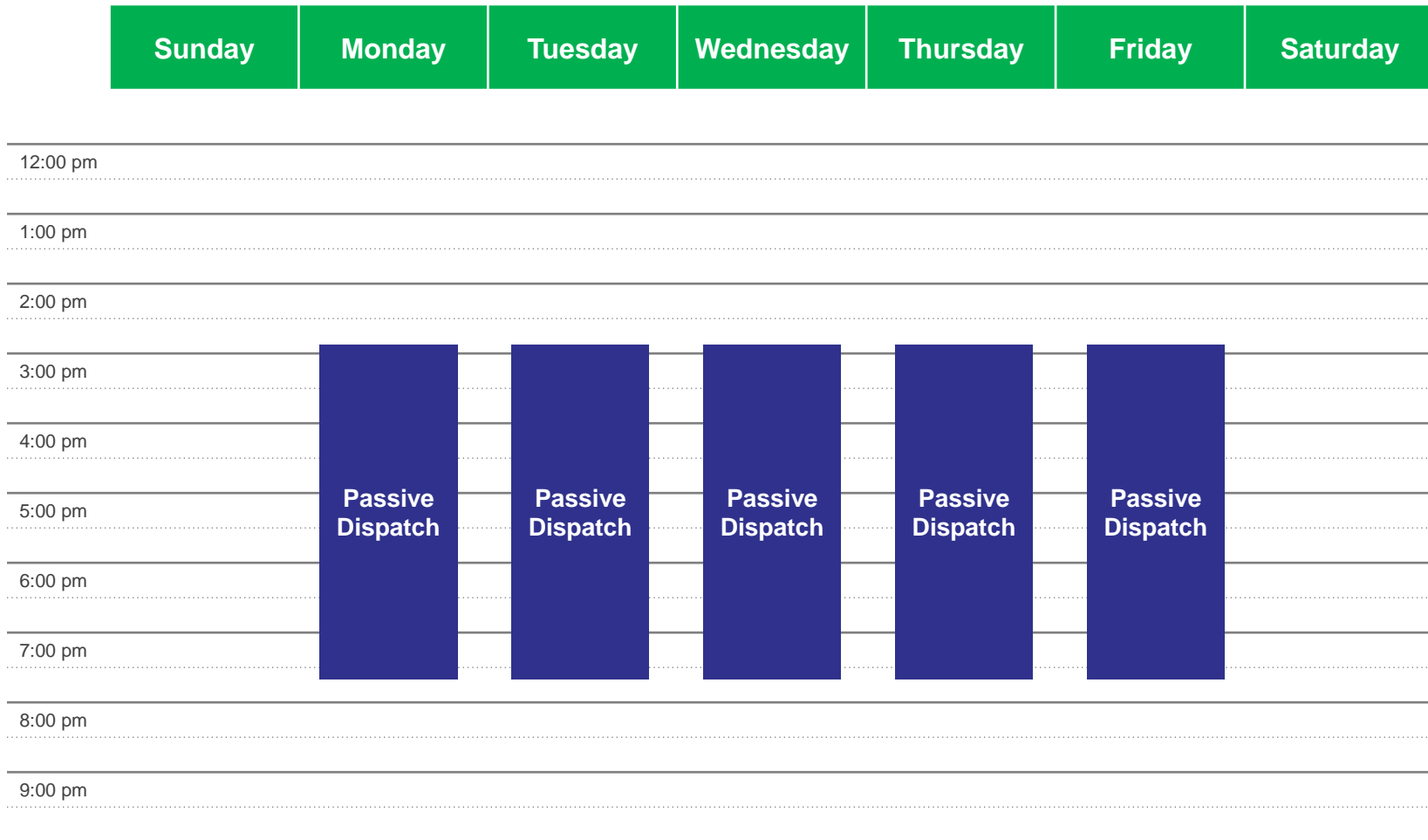
## Customer Classes:

- Residential customer classes: Standard, Underserved, and Low-Income Households
- Commercial/industrial customer classes: Small, Medium, Large

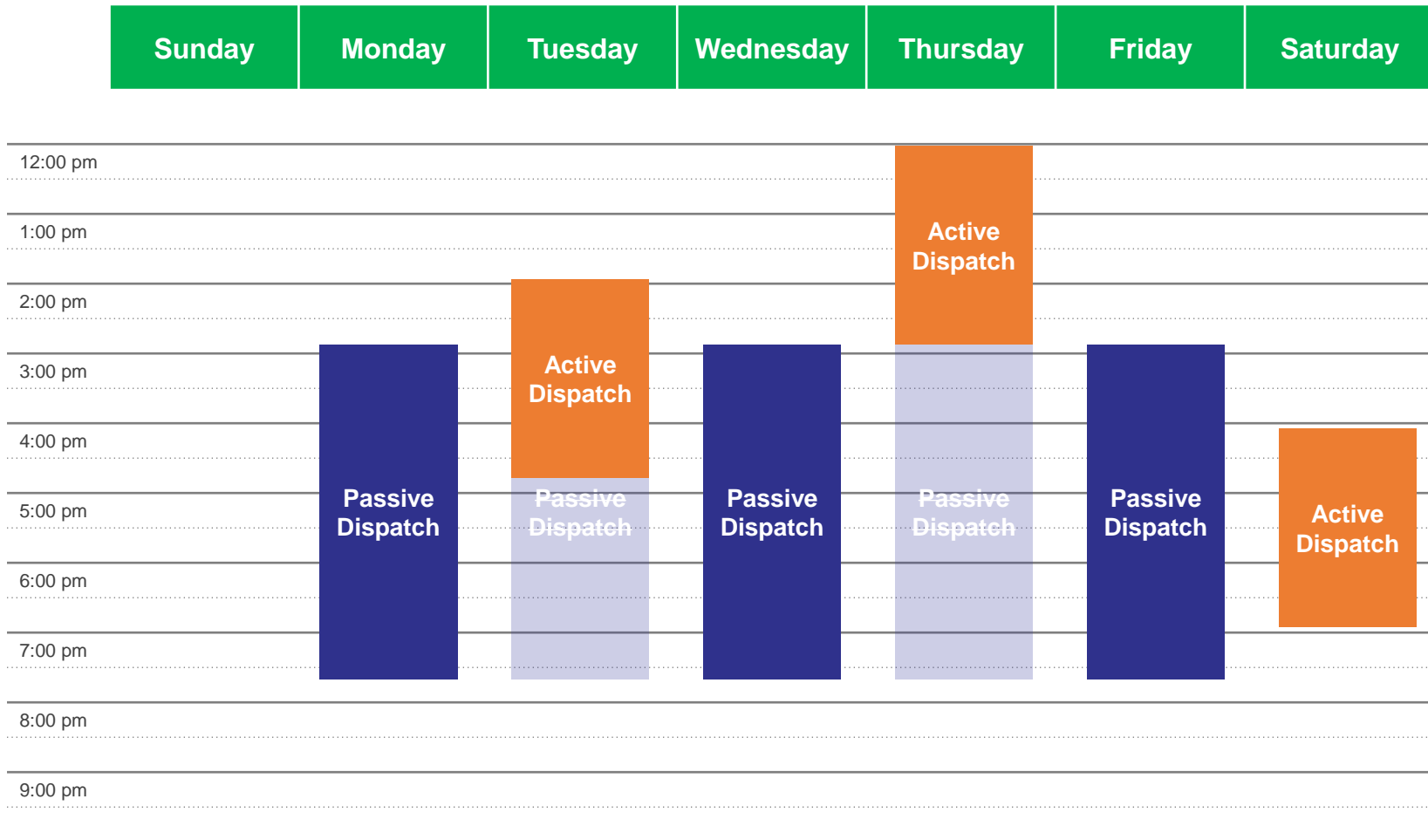
Systems installed through this program will receive two incentives:

Program Element	Design Item	Summer	Winter
<b>Upfront Incentive (Passive Dispatch)</b>	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
<b>Performance-Based Incentive (Active Dispatch)</b>	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)

# Passive Dispatch



# Passive and Active Dispatch



# EDC Collaboration



## CT Green Bank Responsibilities:

- Marketing & Outreach
- Upfront Incentive Administration
- Data Aggregation & Publication



## EDC Responsibilities:

- Performance Incentive Administration
- System Dispatches



## Shared Responsibilities:

- Customer Enrollment (CGB enrolls customer, EDC enrolls system)
- Evaluation, Measurement & Verification

# Residential Incentive Levels



## Upfront Incentive Levels (Installed 2022-2024)

Capacity Block (MW)	Standard	Underserved	Low-Income	Weighted Average
<i>Participation Level</i>	60%	30%	10%	
10	\$200/kWh	\$300/kWh	\$400/kWh	
15	\$170/kWh	\$255/kWh	\$340/kWh	\$196.55/kWh
25	\$130/kWh	\$195/kWh	\$260/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



# Commercial Incentive Levels



## Upfront Incentive Levels (installed 2022-2024)

Capacity Block (MW)	Small Commercial	Medium Commercial	Large Commercial
50	\$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

# Resolution #5



**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors (the “Board”) hereby approves the Program Manual and Marketing Plan substantially in the form attached in as Appendix C and Appendix D, respectively.

**RESOLVED**, the Board directs the Green Bank to submit the proposed Program Manual to PURA pursuant to the Draft Decision in Docket No. 21-08-05.

**RESOLVED**, that the Board approves the Green Bank participation in Energy Storage Solutions as a Program Administrator, which is expected to be cost recovered pursuant to the Final Decision.

**RESOLVED**, that this Board action is consistent with Public Act 21-53 and PURA Dockets No. 17-12-03RE03 & Docket No. 21-08-05.

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect these Resolutions.

Board of Directors  
Agenda Item #5a  
Financing Programs  
Small Business Energy Advantage (“SBEA”)

# SBEA Loan Purchase Facility



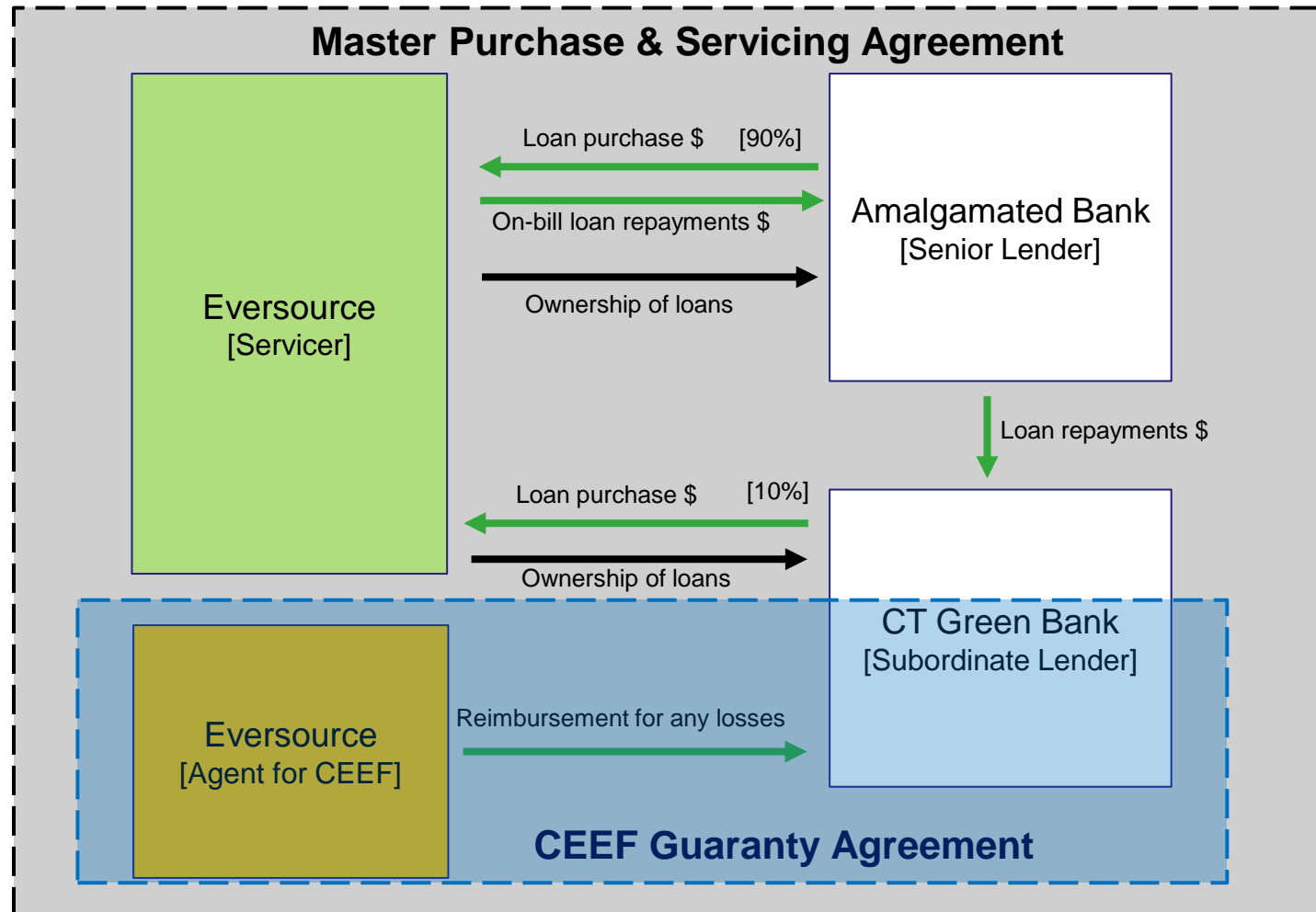
## Investment Summary

- **Opportunity**: Purchase Eversource SBEA Loans using facility funded with Amalgamated Bank and Green Bank capital
- **Terms & Rate**: 3-year commitment to purchase Eversource SBEA “Qualifying Loans” at an equivalent rate currently equal to 30-day LIBOR + 2.25% -- Aim to close by end of 2021
- **Green Bank Participation**: See next slide (moving from flat 10% to 20% + flexibility)
- **Green Bank Exposure**: Green Bank investment will be protected against losses by guaranty from Eversource (as an agent of CEEF)
- **Green Bank Strategic Selection (via Eversource RFP)**:
  - Originally sourced via an RFP issued by Eversource
  - Addressed EEB and Green Bank Joint Committee shared goal “to identify and engage alternative capital sources to lower the cost of and increase opportunities for project financing.”
  - Reduced the cost to CEEF of SBEA financing for Eversource customers and makes capital currently deployed in SBEA loans available for CEEF programs to the benefit of ratepayers
  - Established a valuable and collaborative relationship between Green Bank and Eversource that will be template for delivering similar solution for United Illuminating
  - Amalgamated Bank is America's largest B Corporation bank with \$4 billion in assets

# SBEA Loan Purchase Facility Structure Diagram



>5,700 loans purchased = >\$72,000,000



# Small Business Energy Advantage

## Short-term Renewal Request



CGB has proposed certain changes for program effectiveness & enhance CGB revenue

- Increase CGB's share of the loans from 10% to 20%
- Increase maximum term length from 4 years to 7 years to allow longer payback measures and more comprehensive projects
- Increase access to capital for all eligible borrowers
  - ❑ Increase business customer loan limit to \$1m. Individual loan limit would remain \$100k but businesses with multiple properties could undergo projects across more of their portfolio
  - ❑ Uncap municipal aggregate loan balance, which is currently \$1m. Individual loan limit would remain at \$1m but munis could do multiple projects across their building portfolio that in the aggregate exceed \$1m

All parties are still working on these and other terms, including pricing

- Requesting a 6-month extension to the existing agreement to give time to finalize the discussions
- Will come back to Board for approval of full extension

# Resolution #6



**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors authorizes the Green Bank to extend the MPA under the existing terms for up to six months; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and negotiate and deliver all other documents and instruments as they shall deem necessary and desirable to effect the above-mentioned legal instruments.

Board of Directors  
Agenda Item #6a  
Investments  
Skyview Ventures



# Skyview Facility Amendment



## Background and rationale

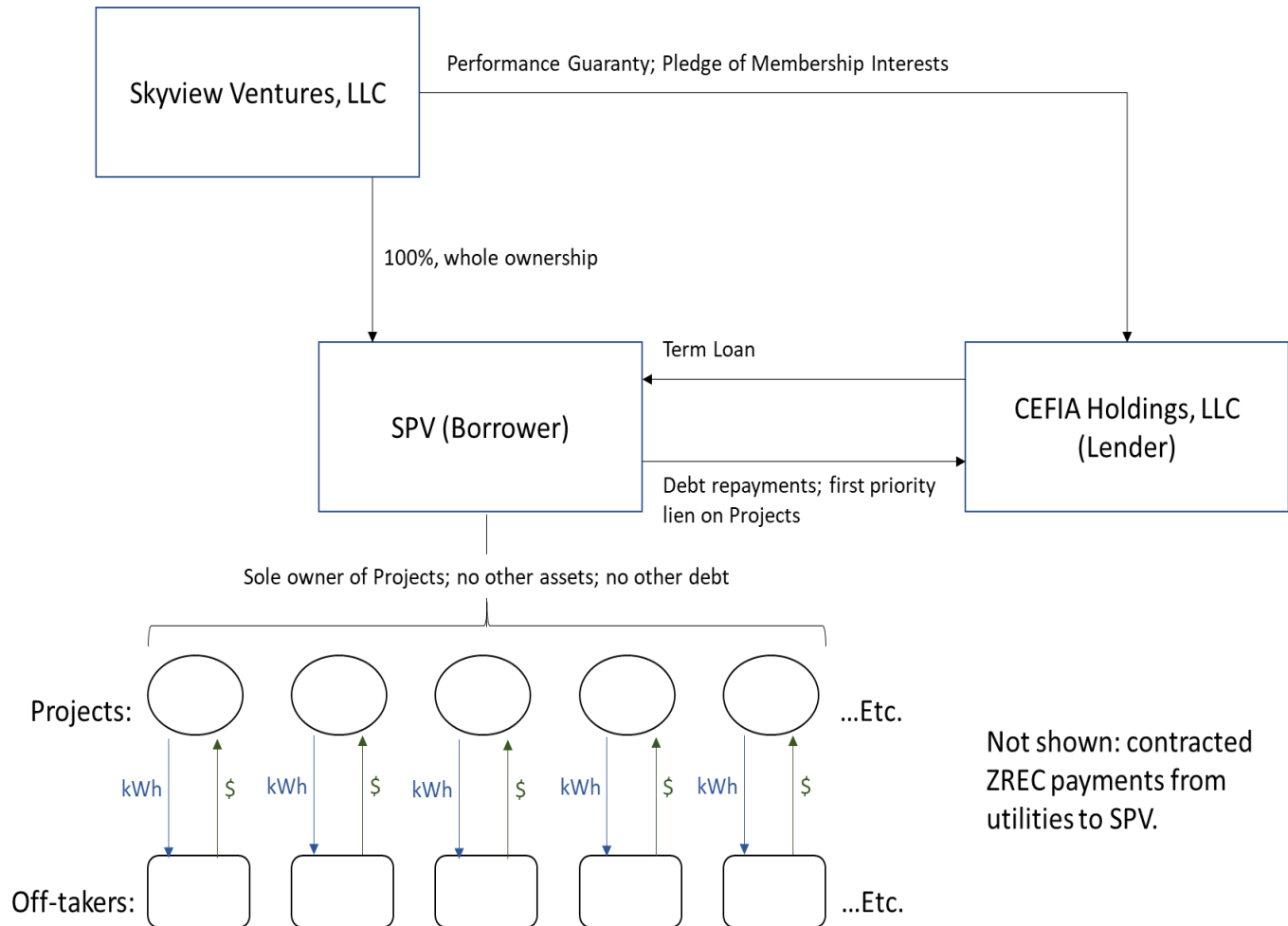
- **Background**– Senior secured term loan facility with a special purpose vehicle (“Skyview SPV”) 100% owned by Skyview Ventures LLC (commercial solar developer; in business since 2008)
  - Skyview SPV develops commercial solar power purchase agreement (“PPA”) projects in CT; now branching out to **energy storage solutions (“ESS”)**
  - \$4.9M deployed to date; 35 projects financed
- **Why amend?**– CGB supports the deployment of ESS in CT and Skyview SPV has pipeline of [REDACTED]. Skyview SPV also has commercial solar PPA pipeline of [REDACTED].

# Skyview Ventures

## Senior Secured Loan Facility



### Transaction Structure Diagram



# Skyview Ventures

## Senior Secured Loan Facility



### *Deployment to Critical Facilities & Underserved Municipalities*

	Total Projects	Schools	Critical Facilities	Underserved Communities
Existing Portfolio	35	12	7	1
Contracted Pipeline	█	█	█	█
RFP Pipeline	█	█	█	█

#### Contracted Pipeline

SkyView’s pipeline currently under contract is █ and includes one critical facility and four projects in the █.

#### RFP Pipeline

The rest of the pipeline consists of large projects that SkyView has submitted to an RFP (success rate has been █ of RFPs they participate in)

# Skyview Facility Amendment



## Overview of controls & changes

- **Controls** – only finance ESS projects participating in CT ESS Incentive Program (“Program”), i.e. projects that:
  - ❑ Use commercially available tech
  - ❑ Use equipment w/ 10-year warranties
  - ❑ Are reviewed and approved by utilities
  
- **Changes**
  - ❑ Increase total commitment from \$7M to \$10M
  - ❑ Allow for financing of ESS projects: construction (in amount to match Program upfront incentive); and term debt.

# Skyview Ventures

## Senior Secured Loan Facility



### *Risks and Mitigants*

- **Operational risk** – revenue, and ultimately DSCR, depend on production (kWh) performance
  
- **Mitigants:**
  1. Diligence: Originally – about half of projects had been operational for 3+ years and had achieved ██████████ of expected production
  2. Same diligence performed on collateral as on CGB-developed commercial solar assets
  3. Stress tested cashflows: even at 90% of expected production, DSCR typically ~1.15x
  4. Generally, for a DSCR of 1.00x, production would have to be 20% below expectations for duration of the term

# Skyview Ventures

## Senior Secured Loan Facility



### *Risks and Mitigants*

- **Default risk** – Skyview fails to make debt repayments
  
- **Mitigants:**
  1. The debt is sized such that DSCR is 1.30x, providing a healthy buffer
  2. The advance rate is generally ~70% (DSCR dependent)
  3. Downside scenario (CGB takes ownership of the collateral) is within our operational comfort zone (CGB has 20 MW commercial solar assets under management)
  4. CGB Investments Team very experienced in asset management, operation, maintenance and resolution of performance matters (C-TEC is 3<sup>rd</sup> party O&M provider)

# Resolution #7



**NOW**, therefore be it:

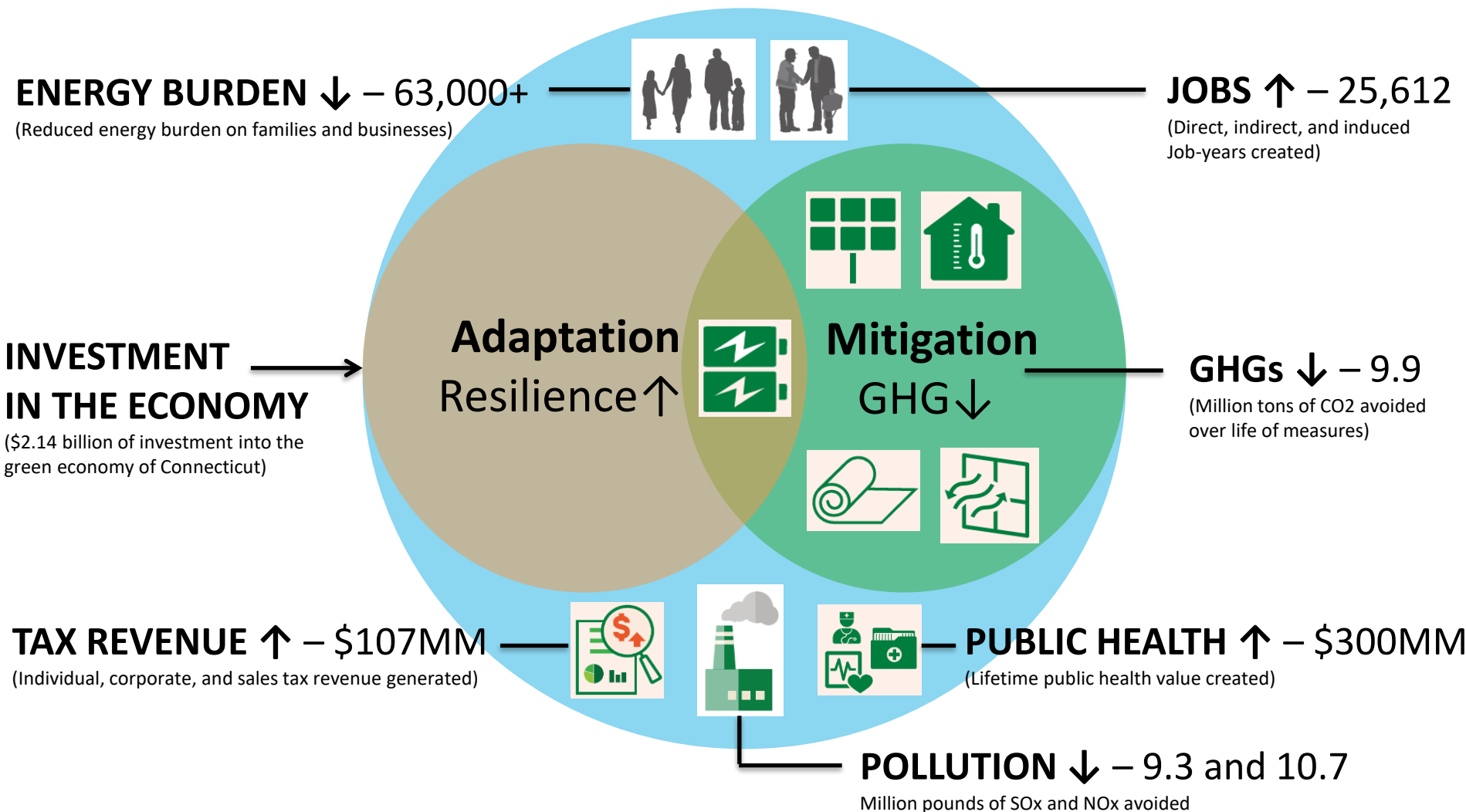
**RESOLVED**, that the Board approves staff's request to amend and restate the Board's existing approval of the Existing Term Loan transaction as described in the "Deployment Committee Memorandum and consistent with the memorandum to the Board dated December 10, 2021 (the "Memorandum") to include ESS projects to be qualified for future advances within the increased limit of \$10,000,000 on terms and conditions substantially consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Existing Term Loan transaction.

Board of Directors  
Agenda Item #7  
Environmental Infrastructure Program



# Mission of the Green Bank

## Confront Climate Change...



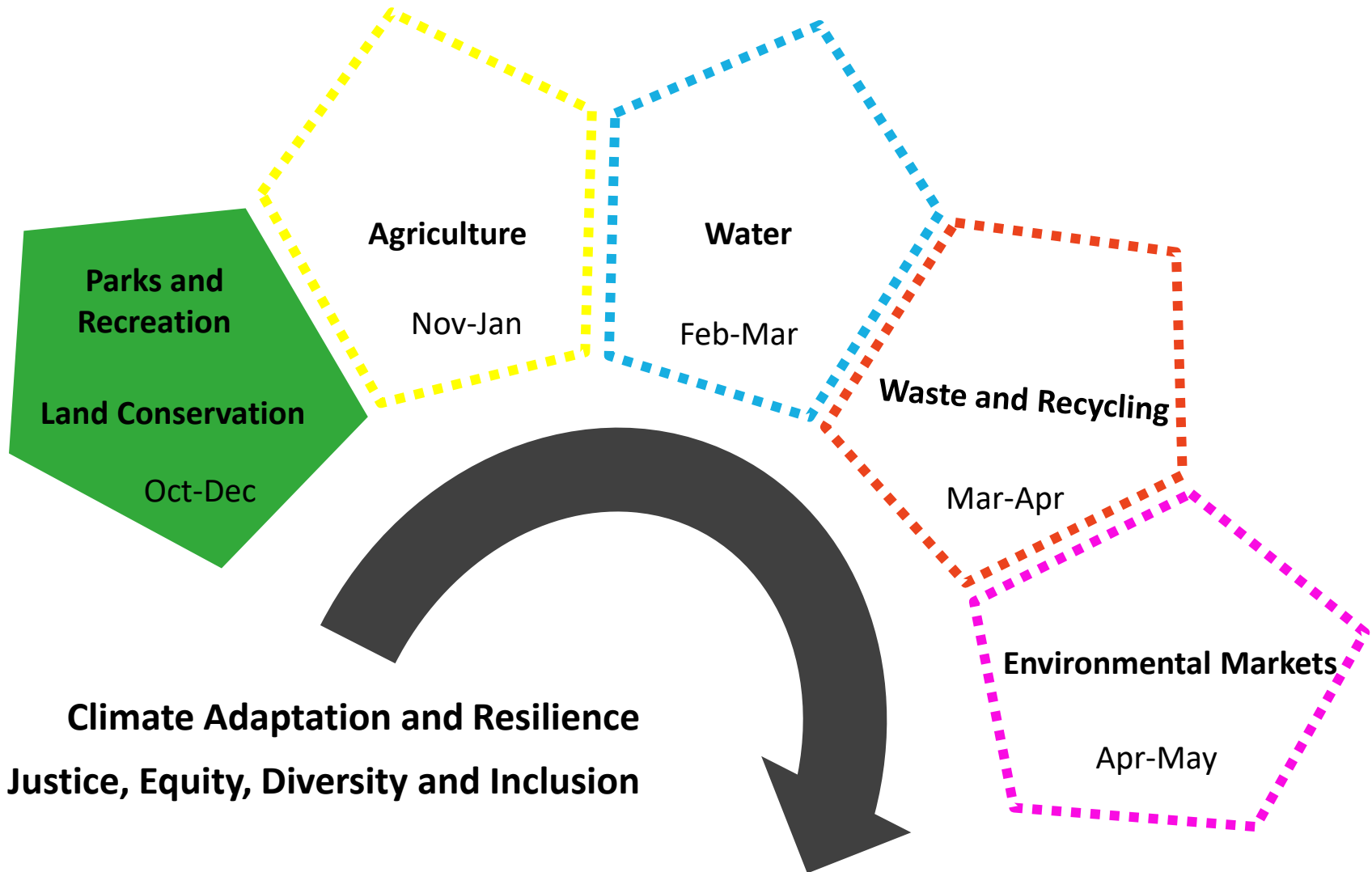
**REFERENCES**

FY21 Annual Comprehensive Financial Report of the Connecticut Green Bank

# Environmental Infrastructure

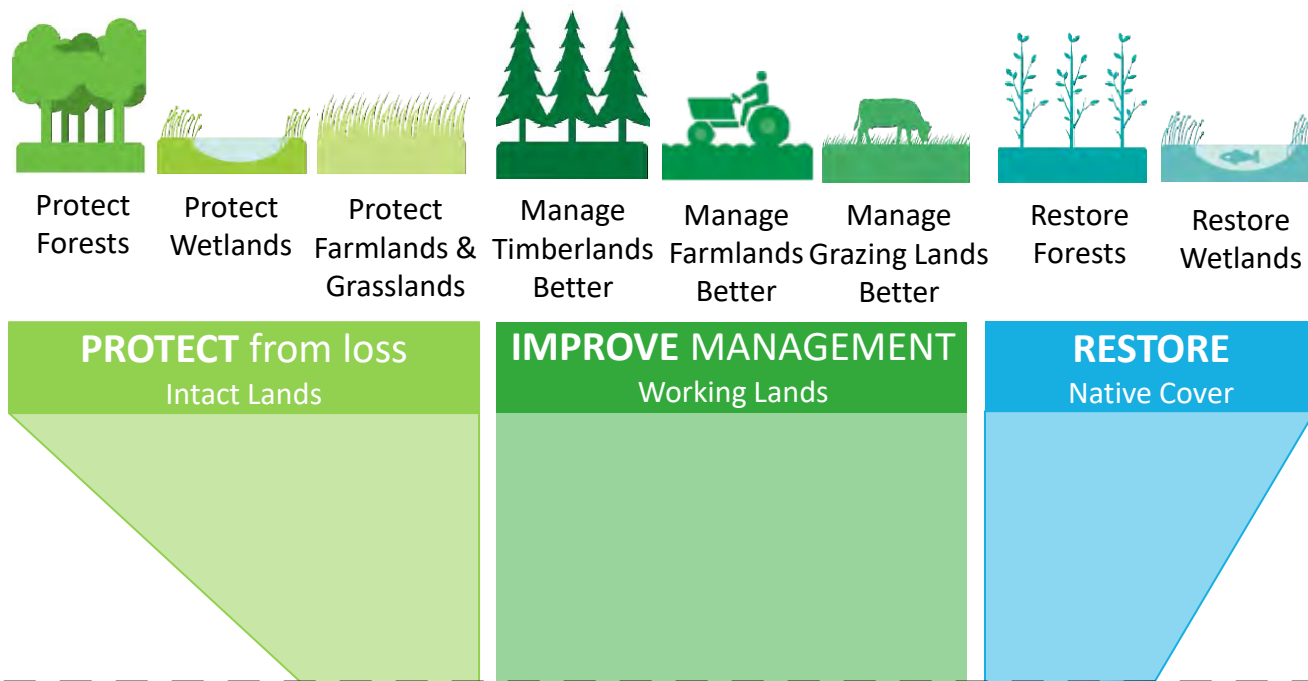


## Stakeholder Engagement Approach by Topic



# Nature Based Solutions

## Mitigation and Adaptation from Open Space



Potential **reductions of GHG emissions** (e.g., carbon storage) and **increase in resilience against climate change** (e.g., flooding) from open space protection, management, and restoration

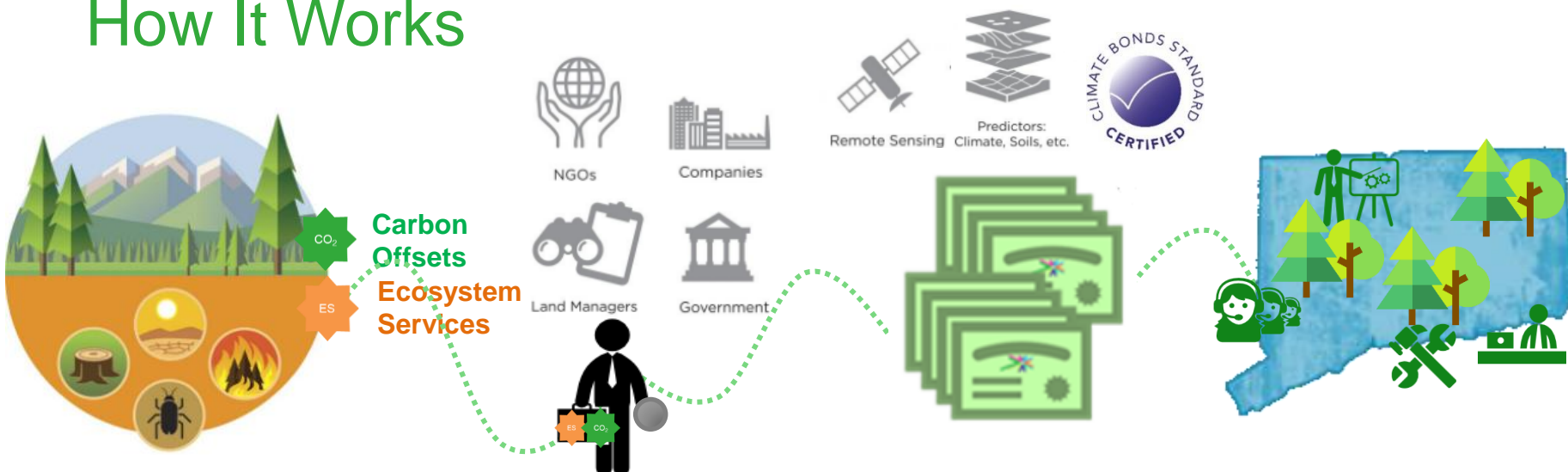
Executive Order 21-3: #20 Forests, #21 Agriculture, and #22 NBS state properties

### REFERENCES

Revised original depiction by Bronson Griscom, Senior Director of Natural Climate Solutions for Conservation International to fit Connecticut context

# Forest Carbon Markets

## How It Works



When forests are sustainably managed, they can produce **carbon offsets** (or other **ecosystem services**). Conservation organizations (e.g., TNC) can provide **training and capital upfront to support small landowners to better manage forests.**

**States with cap-and-trade programs** (e.g., California) or **companies with voluntary commitments** to reduce GHG emissions (e.g., Amazon) can **enter into long-term contracts** with landowners to **purchase carbon offsets.**

To bring the **low-cost and long-term capital** needed to support investment upfront and on an ongoing basis, **bonds** could be issued (e.g., SRF, GLB, etc.), and **secured by SCRF, RGGI, and/or by carbon offset and other ecosystem services revenues** and premium on FSC certified wood

State of Connecticut can **achieve the 21% by 2023 open space goal, while reducing GHG emissions, increasing resilience** against climate change (e.g., flooding), **improving recreation and ecosystems,** and supporting local landowners **build the green economy.**

# Family Forest Carbon Program



## Example of Partnering with Nonprofit Organizations

- **Overview** – developed by American Forest Foundation and TNC to support small landowners (i.e., 30-2,400 acres) access climate finance from carbon markets (e.g., Amazon – 18.5 MMTCO<sub>2</sub> by 2031)
- **Market** – 39% of forest land in U.S. is owned by 21 million family forest owners
- **AFF** – forest conservation organization, including sustainable wood program with network of 70,000 family forest owners managing 19 million acres of forest
- **Carbon Markets** – methodology being review and validated by Verra and pending final approval in 2021



Verified Carbon Standard

Methodology for Improved Forest Management

Overview	Developer	Sectoral Scope	Status
Projects and Programs	The Nature Conservancy American Forest Foundation	14. Agriculture, Forestry, Land Use	Under Development



Board of Directors  
Agenda Item #8  
Other Business

# Non-Financial Statistics

## Kestrel Verifiers



# Green Liberty Notes

## Partnership with Raise Green



A screenshot of the crowdfunding page for CGB Green Liberty Notes, LLC. The page features a background image of a brick building with the Connecticut Green Bank logo. A circular progress indicator shows 9.6% funded (\$23.9K). A blue button labeled "SIGN IN TO INVEST" is visible. A "LIMITED TIME ONLY" timer shows 27 days, 18 hours, and 53 minutes remaining. The page includes a navigation menu with links for OVERVIEW, TERMS & FINANCIALS, FAQs, VIDEO, DOCUMENTS, UPDATES, and Q & A.

**CGB Green Liberty Notes, LLC**  
Green Liberty Notes  
Accelerating green energy adoption in Connecticut.  
\$250K Maximum Offering Amount

9.6% FUNDED (\$23.9K)

SIGN IN TO INVEST

LIMITED TIME ONLY  
27 Days 18 Hours 53 Mins

CONNECTICUT GREEN BANK

OVERVIEW | TERMS & FINANCIALS | FAQs | VIDEO | DOCUMENTS | UPDATES | Q & A

*Confronting climate change and providing all of society with a healthier and more prosperous future*

A screenshot of a video player showing a man in a suit and glasses speaking. The video title is "Introducing our crowdfunding offering". The player includes a play button, a "Watch later" button, and a "Share" button. A "Watch on YouTube" button is visible at the bottom left.

Introducing our crowdfunding offering

Watch later Share

Watch on YouTube



# Board of Directors

## Agenda Item #9

### Adjourn



**BOARD OF DIRECTORS OF THE  
CONNECTICUT GREEN BANK**

Regular Meeting Minutes

Friday, October 22, 2021

9:00 a.m. – 11:00 a.m.

A regular meeting of the Board of Directors of the **Connecticut Green Bank (the “Green Bank”)** was held on October 22, 2021.

**Due to COVID-19, all participants joined via the conference call.**

Board Members Present: Binu Chandy, Claire Coleman, Thomas Flynn, Dominick Grant, Vicki Hackett, John Harrity, Adrienne Houël, Laura Hoydick, Matthew Ranelli, Lonnie Reed, Sarah Sanders, Brenda Watson

Board Members Absent: None

Staff Attending: Blaire Backman, Sergio Carrillo, Shawne Cartelli, Louise Della Pesca, Brian Farnen, Bryan Garcia, Bert Hunter, Alex Kovtunencko, Cheryl Lumpkin, Matt Macunas, Jane Murphy, Ariel Schneider, Eric Shrago, Dan Smith, Fiona Stewart, Mike Yu

Others present: Giulia Bambara, Claire Sickinger, Robert Lamb, Christopher Baisden

**1. Call to Order**

- Lonnie Reed called the meeting to order at 9:02 am.

**2. Public Comments**

- No public comments.

**3. Board Matters – Welcome New Members and Vice Chair Elections**

- Lonnie Reed introduced the new Board members: Vicki Hackett, Sarah Sanders, Dominick Grant, and Laura Hoydick.
- Lonnie Reed nominated Vicki Hackett for Vice Chair. No other nominations were named.

**Resolution #1**

Resolved that Victoria Hackett has been elected by the Board of Directors of the Connecticut Green Bank in accordance with its bylaws to serve as its Vice Chairperson.

## Subject to Changes and Deletions

### 4. Consent Agenda

- Bryan Garcia explained the Consent Agenda items for the new Board members.

#### a. Meeting Minutes of July 23, 2021

##### **Resolution #2**

Motion to approve the meeting minutes of the Board of Directors for July 23, 2021.

#### b. Progress to Targets for FY 2021 (Final)

##### **Resolution #3**

**WHEREAS**, in July of 2011, the Connecticut General Assembly passed Public Act 11-80 (the Act), "AN ACT CONCERNING THE ESTABLISHMENT OF THE DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION AND PLANNING FOR CONNECTICUT'S ENERGY FUTURE," which created the Connecticut Green Bank (the "Green Bank") to develop programs to finance and otherwise support clean energy investment per the definition of clean energy in Connecticut General Statutes Section 16-245n(a);

**WHEREAS**, the Act directs the Green Bank to develop a comprehensive plan to foster the growth, development and commercialization of clean energy sources, related enterprises and stimulate demand clean energy and deployment of clean energy sources that serve end use customers in this state;

**WHEREAS**, on July 18, 2019, the Board of Directors of the Connecticut Green Bank approved a Comprehensive Plan for FY 2020 and Beyond called Green Bonds US, including an annual budget and targets for FY 2021, which was approved on July 24, 2020 and revised on January 22, 2021;

**WHEREAS**, on July 23, 2021, the Board of Directors of the Connecticut Green Bank approved of the draft Program Performance towards Targets for FY 2021 memos for the Incentive Programs and Financing Programs.

**NOW**, therefore be it:

**RESOLVED**, that Board has reviewed and approved the restated Program Performance towards Targets for FY 2021 memos dated October 22, 2021, which provide an overview of the performance of the Incentive Programs and Financing Programs with respect to their FY 2021 targets.

**RESOLVED**, that Board has also reviewed and approved the Investment and Public Benefit Performance memo dated October 22, 2021.

#### c. Board of Directors and Committees – Regular Meeting Schedule for 2022

## Subject to Changes and Deletions

### **Resolution #4**

Motion to approve the Regular Meeting Schedules for 2022 for the Board of Directors, ACG Committee, BOC Committee, Deployment Committee, and Joint Committee.

**Upon a motion made by Matt Ranelli and seconded by Brenda Watson, the Board of Directors voted to approve the Consent Agenda which contains Resolutions 2-4. None opposed or abstained. Motion approved unanimously.**

#### **d. Other Items**

- Bryan Garcia provided an overview of various updates and report outs that are typically provided within the materials to the Board of Directors, for example progress to targets for Q1 of FY22.

### **5. Committee Recommendations and Updates**

#### **a. Audit, Compliance, and Governance Committee**

##### **i. Revised Governance Documents**

- Brian Farnen summarized the changes to the Governance Documents which primarily encompasses adding in the new Environmental Infrastructure scope. There was also a change to the financing of energy efficiency and renewable energy projects based on changes to the statute during the last legislative session.
- Brian Farnen proposed striking the second Resolved statement and striking “Operating Procedures” from the first Resolved statement. The removals from the Resolution are suggested because the Operating Procedures changes will be submitted for Public Comment. If there are no Public Comments, then it would be approved on the Consent Agenda at the next meeting, and if there are material comments then it will be presented for discussion.

### **Resolution #5**

**RESOLVED**, that the Board of Directors of the Connecticut Green Bank approves the revisions to the Green Bank Resolution of Purpose; Bylaws; Ethics Statement; Ethical Conduct Policy of the Board of Directors; and Ethical Conduct Policy of the Staff; and

**Upon a motion made by Matt Ranelli, with the deletion of “Operating Procedures” from the first Resolved clause and the complete deletion of the second Resolved clause, and seconded by Thomas Flynn, the Board of Directors voted to approve Resolution 5. None opposed or abstained. Motion approved unanimously.**

#### **ii. Update to Employee Handbook**

- Eric Shrago summarized the updates to the handbook, which includes updates to the technology policies, the acknowledgement form, health and safety policies, and the IT Vendor Management policy. He reviewed the IT Vendor Management policy update more thoroughly.

## Subject to Changes and Deletions

- Brenda Watson asked if the IT vendors are audited by a third-party vendor, and Eric Shrago responded that yes, and that all but one vendor has SOC2 certification. Also, that all vendors are audited by an outside organization.
- Sarah Sanders asked about the addition of student loan payments, and Eric clarified that it was previously approved and only just added to the handbook more recently.

### **Resolution #6**

**WHEREAS**, pursuant to Section 5.2.1 of the Connecticut Green Bank (Green Bank) Bylaws, the Audit, Compliance, & Governance Committee recommends that the Board of Directors (Board) approve of the above noted revisions to the Green Bank Employee Handbook;

**NOW**, therefore be it:

**RESOLVED**, that the Board hereby approves of the revisions to the Green Bank Employee Handbook presented on October 22, 2021.

**Upon a motion made by Brenda Watson and seconded by Matt Ranelli, the Board of Directors voted to approve Resolution 6. None opposed or abstained. Motion approved unanimously.**

### **iii. Annual Comprehensive Financial Report**

- Matt Ranelli summarized the audit performed by CliftonLarsonAllen (previously known as Blum Shapiro) which is recommended by the ACG Committee to be accepted by the Board.
- Jane Murphy reviewed the annual comprehensive financial report, including the scope, results, financial highlights, and required communications. The audit is performed under both GAAS and GAGAS. Under GAAS, an unmodified opinion is being submitted, and under GAGAS, there were no internal control findings noted and no incidents of noncompliance or other matters which would be required to be reported.
- Overall, the operating revenues increased \$2.2 million year over year, primarily based in increased REC sales, RGGI auction proceeds, and interest income, though there was a decrease in energy system sales. Overall, the operating expenses decreased by \$10.3 million year over year, primarily based in decreases in the provision for loan losses, energy system sales, and general and administrative expenses. There was an increase in program administrative expenses.
  - Sarah Sanders asked for more explanation about the energy system sales and procedures around them. Jane Murphy explained what has affected those changes and the basic process for cash flows from that.
- Jane Murphy summarized the Nonoperating Revenue and Expenses changes, which was almost even with a \$0.1 million increase in Revenue year over year. Overall, the Green Bank's Net Position increased \$12.4 million year over year. This is primarily due to increases in investments in capital assets, the net position restricted for energy programs, and the unrestricted net position as well as a decrease in the nonexpendable restricted net position.
- Jane Murphy explained that an RFP has been submitted to find a new auditor, as this is the sixth year with these auditors and statute requires that the Green Bank change

## Subject to Changes and Deletions

auditors every 6 years.

- Sarah Sanders asked about clarification in the change in auditors, and Jane Murphy answered that although CliftonLarsonAllen is technically a different company than BlumShapiro, because the team would be the same the spirit of the law does not allow CliftonLarsonAllen to be the auditors next year.
- Matt Ranelli commented that he is pleased to again get a clean audit and expressed his thanks to the staff and auditors.
- Bryan Garcia commented that in the December meeting, there will be a presentation of the non-financial statistics section of the annual report. A third-party company analyzes the data from the metric methodologies and impact results are determined and reported.

### **Resolution #7**

**WHEREAS**, Article V, Section 5.3.1(ii) of the Connecticut Green Bank (“Green Bank”) Operating Procedures requires the Audit, Compliance, and the Governance Committee (the “Committee”) to meet with the auditors to review the annual audit and formulation of an appropriate report and recommendations to the Board of Directors of the Green Bank (the “Board”) with respect to the approval of the audit report;

**WHEREAS**, the Committee met on October 12, 2021 and recommends to the Board the approval of the proposed draft Annual Comprehensive Financial Report (ACFR) contingent upon no further adjustments to the financial statements or additional required disclosures which would materially change the financial position of the Green Bank as presented.

**NOW**, therefore be it:

**RESOLVED**, that the Board approves of the proposed draft Annual Comprehensive Financial Report (ACFR) contingent upon no further adjustments to the financial statements or additional required disclosures which would materially change the financial position of the Green Bank as presented.

**Upon a motion made by Vicki Hackett and seconded by Brenda Watson, the Board of Directors voted to approve Resolution 7. None opposed or abstained. Motion approved unanimously.**

#### **iv. Creation of Ad Hoc Advisory Committee**

- Brian Farnen explained the reasoning for the proposal of the Ad Hoc Committee which would consist of prior members of the Board of Directors, emeritus industry, policy, energy finance experts, environmental finance experts as nominated by the Chairperson in consultation with the President and CEO and approved by the Board.

### **Resolution #8**

**WHEREAS**, the Audit, Compliance and Governance Committee recommended to the Board of Directors for approval creation the proposed Ad Hoc Advisory Committee at its October 12, 2021 Committee Meeting.

**NOW**, therefore be it:

## Subject to Changes and Deletions

**RESOLVED**, that the Board of Directors hereby approves creation the proposed Ad Hoc Advisory Committee.

**Upon a motion made by Adrienne Houël and seconded by Claire Coleman, the Board of Directors voted to approve Resolution 8. None opposed or abstained. Motion approved unanimously.**

### v. Board of Director Appointments

#### 6. Incentive Programs Updates and Recommendations

##### a. Q1 Progress to Target Update

- Sergio Carrillo reviewed the progress to targets for the Incentive Programs which are currently on target except for Battery Storage, which is slated to start in January 2022. He explained how the RSIP/RSIP-E targets were surpassed, which was due to the MW extension, though both programs are fully subscribed. The RSIP team is working with EDCs on the transition to the new Residential Renewable Energy Solutions program.

##### b. Residential Solar Investment Program Update

- Sergio Carrillo summarized the progress to the Revenue Grade Meters replacements. The progress is a bit slow to start but is going smoothly and should increase soon. There is also an algorithm being developed to estimate the production of the non-communicating meters, which if successful would allow the replacement time to be stretched over a few years while continuing to monetize the RECs. The algorithm should allow production to be estimated within a 0.01% margin of error. As well, the RSIP team is working with ISO New England and NEPOOL GIS to implement the rule changes which would allow RECs to be created with estimated data.
  - Brenda Watson asked about the impact to customers regarding the system change over. Sergio Carrillo responded there should be no negative impact to production as the systems are still producing and the customer is still receiving the energy generated, the monitors just are unable to communicate the systems production data. They will keep recording the production, it just can't be sent to the monitoring platform. As for the replacement itself, the impact may be a bit tricky if the monitor is inside the home, but that is about it.
  - Matt Ranelli asked for clarification as to the reason for the change being related to incentives to homeowners. Sergio Carrillo answered that the homeowners that already received their incentives upfront have little incentive to pay for the meter replacements, but third-party owners, who receive quarterly payments based on production data will be impacted. Moreover, third-party owners are obligated to replace their own systems. Homeowners systems are being replaced by the Green Bank so that the data can continue to be collected.

##### c. Battery Storage Program Update

- Sergio Carrillo reviewed the background information behind the program then summarized the update which includes that the program guidelines document was recently finalized and submitted to PURA for approval. Next to be developed is the implementation of the program.

## Subject to Changes and Deletions

- Vicki Hackett asked about the pieces being included in the benefit cost analysis, specifically in the benefit column. Sergio Carrillo responded that it is a complicated group of contributions, but the biggest one is the reduction of peak demand in the state. There are also emissions reductions and avoided capacity in the ISO. Bryan Garcia added that there are five different benefit cost tests which are considered and in PURA's ruling, the RIM was selected as the most important, while the other four (4), including PCT, UCT, TRC, and SCT will also be tracked.
- Brenda Watson asked if PosiGen customers would be prioritized first, and Bryan Garcia responded likely yes because the priority of PURA is to ensure battery storage is accessible and affordable to low income families and those who reside in distressed communities. However, PURA will also allow stand-alone battery storage systems, so through the C&LM Plan, HES-IE customers will be pursued. The Green Bank will focus its efforts to serve low-income and DECD distressed communities, as PURA has prioritized them. Vicki Hackett added that there should be a great opportunity to coordinate with the new Affordable Housing Retrofit Program.
- John Harranty asked about bundling solar, battery, and EV chargers for homes, and if any of the plans include that energy solutions bundle. Bryan Garcia said he believes between the renewable energy tariffs, battery storage incentive programs, and C&LM Plan incentives (e.g., weatherization and beneficial electrification), that we will see bundling to address the key climate change wedges, and that through the Joint Committee these connections can be made.

## 7. Financing Program Updates and Recommendations

### a. Q1 Progress to Target Update

- Bryan Garcia reviewed the progress to targets, in which unfortunately 25% of the targets are not yet reached though the pipeline is strong and staff feels confident in the current progress. C-PACE performance is the largest area of concern, particularly third-party lender activity. The theory is that the C-PACE market continues to move away from smaller project types and more towards larger, new construction projects, even though they are less numerous and take longer to secure. However, the PPA pipeline is strong, primarily from Solar MAP efforts. As for Multifamily programs, efforts are being shifted to the solar PPA with battery storage for affordable housing.
  - John Harranty asked if contractors make money on the C-PACE programs, which they do, and why they aren't pushing the C-PACE projects more. Bert Hunter responded that one possible reason is the change from the ZREC system to the tariff system which may be causing contractors to wait and see how that will affect projects. As well, the energy prices in more recent years have generally been lower than in previous years, which means there is a smaller demand for energy savings, though there may be a surge in energy costs this winter as energy commodity costs get reflected in energy prices.
  - Claire Coleman commented that she was glad to see the extension of the SBEA partnership.

## 8. Investment Updates and Recommendations

### a. Q1 Progress to Target Update

- Bert Hunter reviewed the previously approved transactions for PosiGen, Historic Cargill



## Subject to Changes and Deletions

Falls, the Green Liberty Bonds, the Green Liberty Notes, and the FCE Groton Project. For PosiGen, they were refinancing with a new banking syndicate, dramatically reducing Green Bank exposure for the lease-backed financing facility. At the closing of the new facility, the draw on the Green Bank's funding for the PBI backed facility is pretty much capped at just shy of \$10 million. For Historic Cargill Falls, the financing is being closed and the hydro work is now underway and should be completed by the end of November. For the Green Liberty Bonds, the issuance of Green Bank green bonds backed by the 5<sup>th</sup> and 6<sup>th</sup> tranches of SHRECs is expected in the first quarter of the 2023 calendar year. For the Green Liberty Notes, staff is expecting to begin issuances of \$250,000 in notes every quarter on one-year maturities, beginning in November. For the FCE Groton Project, the project is mechanically complete and will be connected to the grid shortly. However, there is a new Resolution to allow for an extension through the end of the calendar year for the Board's credit approval for Green Bank financing for the project..

### **Resolution #10**

**RESOLVED**, that the Green Bank Board hereby approves the extension of time for the execution of the Credit Facility related to FuelCell Energy, Inc. ("FCE") to no later than 378 days from the original date of authorization by the Board (i.e., not later than December 31, 2021); and

**RESOLVED**, that the President of the Green Bank and any other duly authorized officer is authorized to take appropriate actions to provide the Credit Facility to FCE (or a special purpose entity wholly-owned by FCE) in an amount not to exceed \$8,000,000 with terms and conditions consistent with the memorandum submitted to the Board dated December 18, 2020 (the "Memorandum"), and as he or she shall deem to be in the interests of the Green Bank and the ratepayers; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents and instruments as they shall deem necessary and desirable to affect the Term Loan and participation as set forth in the Memorandum.

**Upon a motion made by John Harrity and seconded by Vicki Hackett, the Board of Directors voted to approve Resolution 10. None opposed and Matt Ranelli abstained. Motion approved.**

## **9. Environmental Infrastructure Programs Updates and Recommendations**

### **a. Environmental Infrastructure – Comprehensive Plan Process**

This was discussed after item 10.

- Bryan Garcia summarized the updates to setting up the newly added Environmental Infrastructure scope. An introductory meeting was held with DEEP, some governance changes have been made today and will continue to be identified, work on the bonding potential is being developed, and a strategic retreat is planned for February 2022 due to COVID-19 precautions. More time is needed to develop the Director of Environmental Infrastructure position, though Sara Harari has been hired as the Associate Director to support the President and CEO to make steady progress on strategic new initiatives. As well, Ashley Stewart has been hired as a consultant for Stakeholder Engagement, progressing by topic. The goal is to have a recommendation ready to be presented in

## Subject to Changes and Deletions

May-June 2022.

### 10. Other Business

This was discussed after item 8.

- Bert Hunter summarized the Bonding Potential that's been provided under PA 21-115, which includes bonding maturities that can extend up to 25 years for Clean Energy projects and up to 50 years for bands funding Environmental Infrastructure projects, in both cases based on a project's expected useful life. For SCRF, the Green Bank can now support bond maturities up to 25 years which has increased from 20 years. Issuance Capacity is about \$190 million, subtracting existing bonds issued and about \$30 million for SHREC Tranches 5 & 6, but staff thought it was best to only ask for what was reasonable for the next year or so before asking the legislature for any SCRF limit increases.
- Bert Hunter reviewed the bonding principles which were also explained in the memo sent to the Board. He continued to explain the benefit of receiving better ratings and for longer maturities of bonds as well as some of the best practices from other states, including California's IBANK, Pennsylvania's PENNVEST, and Rhode Island's RIIB. Bob Lamb from Lamont Financial introduced himself and explained his involvement with the Green Bank and its bonding programs.

### 11. Executive Session

**Upon a motion made by John Harrity and seconded by Laura Hoydick, the Board of Directors voted to move to Executive Session to discuss confidential personnel related matters as it relates to officer compensation. None opposed or abstained, and the Board of Directors Meeting entered Executive Session at 11:00 am.**

The Board of Directors discussed item 11.a. in Executive Session.

**The Board of Directors ended Executive Session and resumed publicly at 11:25 am.**

#### **a. Personnel Related Matters – Officer FY21 Performance Review**

##### **Resolution #9**

**WHEREAS**, Section 3.1 of the Connecticut Green Bank (Green Bank) Bylaws provides that the Board of Directors (Board) shall be responsible for determining or approving compensation for the officers;

**WHEREAS**, on June 25, 2021, the Board approved a 4.0% merit pool in its FY 2021 budget for annual merit adjustments that can range from 0.0% to 5.0%;

**WHEREAS**, the Green Bank has completed its annual performance review process based on the Board approved annual goals and 360-degree performance reviews from the staff;

**WHEREAS**, the President and C.E.O. of the Green Bank recommends a 4.0% merit increase for the Officers other than himself and authorizing the Chair to determine the President

## Subject to Changes and Deletions

and C.E.O.

**NOW**, therefore be it:

**RESOLVED**, the minimums and maximums for salary ranges for Grades 18 through 21 shall be inflation-adjusted since 2018 as is standard practice for Grades 11 through 17; and

**RESOLVED**, that all Officers other than the President and C.E.O. shall receive a 4.0% merit increase for Fiscal Year 2021; and

**RESOLVED**, that the Board authorizes the Chair of the Green Bank to determine the merit compensation adjustment for the President and C.E.O. for FY 2021 based on the (i) feedback of the Board members, (ii) performance towards meeting the Green Bank Board approved organizational goals for Fiscal Year 2020 and (iii) his Fiscal Year 2020 360-degree performance review.

**Upon a motion made by Laura Hoydick and seconded by John Harrity, the Board of Directors voted to approve Resolution 9. None opposed and Claire Coleman and Vicki Hackett abstained. Motion approved.**

### 12. Adjourn

**Upon a motion made by John Harrity and seconded by Adrienne Houël, the Board of Directors Meeting adjourned at 11:27 am.**

### 13. Mandatory Ethics Training

The meeting transitioned into the annual, mandatory Ethics training.

Respectfully submitted,

---

Lonnie Reed, Chairperson

# Memo

**To:** Connecticut Green Bank Board of Directors  
**From:** Brian Farnen (Vice President, General Counsel & Chief Legal Officer)  
**Date:** December 17, 2021  
**Re:** Annual Governance Document Review – Operating Procedures

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On an annual basis, the Legal Department reviews all Green Bank governance documents and presents any revisions at the fall Audit, Compliance, & Governance Committee meeting and then at the following Board of Directors (Board) meeting. The 2021 revisions to the governance documents were focused on the Green Bank's expansion of scope pursuant to Public Act 21-115.

At the October 22, 2021 Board meeting, all changes to the governance documents were approved except for the Operating Procedures. The Operating Procedures final approval was contingent upon whether any feedback was received through the public comment period required pursuant to CT General Statute § 1-121. As no public comments were received through the comment period, Green Bank staff is now presenting the Operating Procedures for final approval. See the attachment.

## Resolution

**RESOLVED**, that the Board of Directors of the Connecticut Green Bank approves the revisions to the Operating Procedures.

# CONNECTICUT GREEN BANK

## OPERATING PROCEDURES

### PURSUANT TO

Section 16-245n of the  
Connecticut General Statutes

Adopted ~~December 16, 2016~~ January 24, 2020  
Revised January 24, 2020 [ ]

## I. DEFINITIONS

Definitions of terms used in these Operating Procedures are as stated in the Green Bank's Bylaws or in Section 16-245n of the General Statutes.

Clean Energy Project: An activity that (i) promotes investment in clean energy; (ii) fosters the growth, development, and commercialization of clean energy sources and related enterprises; (iii) stimulates demand for clean energy and deployment of clean energy sources that serve end use customers in this state; or (iv) supports the development of advanced technologies that reduce energy use from traditional sources. For purposes of this definition, "clean energy" has the meaning as provided in Connecticut General Statutes § 16-245n(a), as may be amended from time to time.

Environmental Infrastructure Project: [An activity that \(i\) promotes investment in environmental infrastructure and \(ii\) fosters the growth, development, and commercialization of environmental infrastructure and related enterprises. For purposes of this definition, "environmental infrastructure" has the meaning as provided in Connecticut General Statutes § 16-245n\(a\), as may be amended from time to time.](#)

## **II. GENERAL PURPOSES**

The general purposes of the Connecticut Green Bank shall be as prescribed in Section 16-245n of the General Statutes, and in a resolution of purposes adopted by the Board pursuant to Section 16-245n(d)(1) of the Connecticut General Statutes, including implementation of the Comprehensive Plan (all together referred to in these Operating Procedures as “the purposes of the Green Bank”).

## **III. GOVERNANCE**

The Green Bank, a quasi-public authority of the State of Connecticut, shall be governed by a Board of Directors comprised of a number and appointed in a manner as prescribed in Section 16-245n(e) of the General Statutes. The affairs of the Board shall be conducted in accordance with applicable law, the Green Bank’s Bylaws, and such policies with respect to corporate governance as may be adopted by the Board.

## **IV. ADMINISTRATION**

The affairs of the Green Bank shall be administered in accordance with applicable law, the Bylaws, these Operating Procedures and other administrative policies as may be adopted by the President in consultation with the Board. The Board shall appoint a President and such other officers as provided in the Bylaws. Under the direction of the Board, such officers shall conduct the business of the Green Bank and shall have such authority as is conferred by applicable law, the Bylaws, these Operating Procedures, and the Board. References in these Operating Procedures to approval by the Board shall mean and include approval by the Board or by any

duly constituted committee thereof authorized to act on behalf of the Board pursuant to the Bylaws of the Green Bank.

**V. ADOPTION OF ANNUAL OPERATING BUDGET AND PLAN OF OPERATION**

Sixty (60) days prior to the close of each fiscal year, the President shall cause to be prepared a suggested Annual Operating Budget for the forthcoming fiscal year, which shall also comprise the Annual Plan of Operation. The suggested Annual Operating Budget for the forthcoming fiscal year shall be considered by the Board prior the close of the then current fiscal year, modified if deemed necessary, and adopted to be effective beginning the first day of the forthcoming fiscal year.

Any expenditure that exceeds the amount annually budgeted for a specific line item in the Annual Operating Budget by an amount greater than ten thousand dollars (\$10,000) shall require the approval of the Board.

The Annual Operating Budget shall incorporate the Green Bank's Annual Plan of Operation by specifying operating, programmatic, investment, and other expenses for the forthcoming fiscal year.

**VI. COMMUNITY DEVELOPMENT FINANCIAL INSTITUTION**

The Green Bank or an affiliate may seek to qualify as a Community Development Financial Institution under Section 4702 of the United States Code. If approved as a Community Development Financial Institution, then the Green Bank would be treated as a qualified



community development entity for purposes of Section 45D and Section 1400N(m) of the Internal Revenue Code.

**VII. PERSONNEL POLICIES**

All employees shall be exempt from the classified service and shall have all rights and benefits provided by applicable law. Grade classifications for each job title shall be established by the President, subject to Board approval.

Hiring & Promotions: The President shall, in accordance with the Green Bank’s Bylaws, establish a schedule of positions and total staffing levels for the Green Bank. The schedule of positions shall describe the signature authority, if any, of each position. The President, acting on behalf of the Board, may from time to time fill any position on such schedule of positions and within such total staffing levels, except as may otherwise be provided in the Bylaws or any applicable resolution of the Board. The creation of any new Director-level position shall require the separate approval of the Board. For these purposes, “Director-level” means a Green Bank staff position one level under the officers in the Green Bank’s staff organizational chart.

Whenever possible, the Green Bank shall maintain an identifiable career path for each class of positions on the schedule of positions approved by the Board. If the President determines it to be appropriate, then a current employee’s position may be reclassified to another position within said career path. New positions approved by the Board and existing positions that become available as a result of a current employee vacating such position shall be posted internally and, if the President determines it to be appropriate, then publicly advertised in a manner reasonably

designed to reach a range of possible applicants. A current employee shall be eligible for reclassification or promotion to an existing or new position only if such employee has at least six (6) months of service with the Green Bank and meets the minimum qualifications for such position.

Notwithstanding any other provision of this section or any employee handbook or other personnel policies of the Green Bank, the position of the President, the manner of the conduct of any search for qualified applicants for such position, and the terms and conditions of employment in such position, including matters of compensation, dismissal, and severance, shall be in the discretion and subject to the approval of the Board. Hiring and promotion shall in all cases be in accordance with the Green Bank's Affirmative Action Plan and applicable statutes.

Compensation and Benefits: The Board shall establish and may from time to time modify reasonable compensation plans and employee benefits programs and policies as the Board determines to be necessary or appropriate to attract and retain qualified employees and carry out the Green Bank's statutory mission, including:

- (a) A compensation plan, which shall consist of sufficient salary grades to provide such compensation rates as may be determined to be necessary or desirable for all job classifications within the Green Bank, and which may include an incentive compensation program for all jobs classifications;
- (b) An employee benefits program, which may include, but is not limited to, vacation days, holidays, sick days, group health, life, and disability insurance, tuition reimbursement,

length of service awards and other benefits, including eligibility criteria and benefit levels;

- (c) A performance evaluation system, which may be used to determine merit increases in salary and incentive compensation levels;
- (d) Policies with respect to compensatory time, flex-time, and telecommuting;
- (e) Policies with respect to severance pay and benefits;
- (f) Policies with respect to business and travel reimbursement; and
- (g) Other reasonable compensation and employee benefits programs and policies as the Board determines to be necessary and appropriate to attract and retain qualified employees.

The President shall be empowered to administer the Green Bank's compensation plan and employee benefit programs and policies as approved by the Board, and shall have the authority to approve performance evaluations, determine merit increases and incentive compensation payments, and carry out such other duties and responsibilities as appropriate within the overall salary and employee benefits administration plan, except that performance evaluations and determination of merit or other salary increases and bonus payments for the position of President shall be reserved to the Board or the committee of the Board with responsibility for matters of compensation. The President has the authority to establish and modify certain employee policies involving workplace flexibility that do not in the aggregate have an adverse financial impact on the Green Bank. The Board shall review the Green Bank's compensation plan and employee benefit programs a part of its annual review of the Green Bank's Operating Budget and Plan of Operation.

Dismissal: Employment with the Green Bank is at-will, which means that either the employee or the Green Bank may terminate the relationship at any time and for any reason, with or without cause. The President may impose any level of disciplinary action, including termination, based upon the severity of the offense requiring discipline and the employee's past work record. This in no way alters the at-will employment policy.

**VIII. PURCHASE, LEASE, ACQUISITION POLICY**  
**FOR REAL AND PERSONAL PROPERTY**

The Green Bank, acting through the President or another duly authorized officer, shall have the authority to invest in, acquire, lease, purchase, own, manage, hold, and dispose of real and personal property, and to lease, convey, or deal in or enter into agreements with respect to such real and personal property, on any terms necessary or incidental to the carrying out of the purposes of the Green Bank.

Procurement Procedures: The Green Bank may purchase, lease, or acquire real and personal property on a bid, negotiated, or open-market basis, including through a sole-source procurement or in such other manner as the President determines to be appropriate and in the best interests of the Green Bank in the circumstances, provided that in the case of any contract or agreement for the purchase, lease, or acquisition of real or personal property requiring an expenditure by the Green Bank in excess of seventy-five thousand dollars (\$75,000), wherever possible bids or

proposals shall be solicited from at least three (3) qualified parties. The requirements of this subsection shall not be applicable to transactions entered into by the Green Bank primarily for the purpose of providing financial assistance pursuant to Articles XII, XIII and XIV of these Operating Procedures.

**IX. CONTRACTING FOR PROFESSIONAL SERVICES**

The Green Bank, acting through the President or another duly authorized officer, shall have the authority to engage accountants, attorneys, appraisers, financial advisers, investment advisors, underwriters, investment managers, investment bankers, brokers, architects, construction managers, engineers, and other consultants and professionals on any terms necessary or incidental to the carrying out of the purposes of the Green Bank.

Procurement Procedures: Contracts for professional services shall be awarded by the Green Bank in such manner, including on the basis of a sole-source procurement, as the Board determines to be appropriate and in the best interests of the Green Bank in the circumstances, provided that (i) for such contracts requiring an expenditure by the Green Bank up to and including seventy-five thousand dollars (\$75,000) over a period of one (1) fiscal year, the President has sole approval authority; (ii) for such contracts requiring an expenditure by the Green Bank over seventy-five thousand dollars (\$75,000) and up to and including one hundred fifty thousand dollars (\$150,000) over a period of one (1) fiscal year, the President and the Chairperson must both approve the expenditure; and (iii) for such contracts requiring an expenditure by the Green Bank of over one hundred fifty thousand dollars (\$150,000), such contract shall, whenever possible, be awarded on the basis of a process of competitive negotiation where proposals are solicited from at least three (3) qualified parties. The provisions of Section 1-127 of the General Statutes shall apply to the engagement of auditors by the Green Bank.

**X. STATE CONTRACTING REQUIREMENTS**

Any solicitation of bids or proposals by the Green Bank, and any award of a contract by the Green Bank, shall be subject to all state procurement and contracting requirements applicable to the Green Bank as a quasi public agency of the state

**XI. FUNDING SOURCES AND PROCEDURES OF  
GENERAL APPLICABILITY TO FINANCIAL ASSISTANCE**

Funding Sources: Funding sources specifically authorized by the Statute include, but are not limited to:

- (a) Funds deposited in the Clean Energy Fund or the Environmental Infrastructure Fund as described in Section 16-245n; ~~repurposed from existing programs providing financing support for clean energy projects, provided any transfer of funds from such existing programs shall be subject to approval by the General Assembly and shall be used for expenses of financing, grants, and loans;~~
- (b) Any federal funds that can be used for the purposes specified in Section 16-245n(c) of the General Statutes;
- (c) Charitable gifts, grants, and contributions, as well as loans from individuals, corporations, university endowments, and philanthropic foundations;
- (d) Earnings and interest derived from financing support activities for clean energy and environmental infrastructure projects backed by the Green Bank; and

- (e) If and to the extent that the Green Bank or an affiliate qualifies as a Community Development Financing Institution under Section 4702 of the United States Code, then funding from the Community Development Financing Institution Fund administered by the United States Department of Treasury, as well as loans from and investments by depository institutions seeking to comply with their obligations under the United States Community Reinvestment Act of 1977; and
- (f) The Green Bank may enter into contracts with private sources to raise capital. The average rate of return on such debt or equity shall be set by the Board.

Procedures of General Applicability to Financial Assistance:

~~(a) For clean energy projects, the amount to be financed by the Green Bank and other nonequity financing sources cannot exceed eighty per cent (80%) of the cost of developing and deploying such projects.~~

~~(b) For energy efficiency projects the amount to be financed by the Green Bank and other nonequity financing sources cannot exceed one hundred per cent (100%) of the cost of financing such projects.~~

~~(e)~~(a) The Green Bank may assess reasonable fees on its financing activities to cover its reasonable costs and expenses, as determined by the Board.

~~(d)~~(b) The Green Bank shall make information regarding the rates, terms, and conditions for all of its financing support transactions available to the public for inspection, including formal annual reviews by both a private auditor conducted pursuant to Section 16-245n(f)(2) of the General Statutes and the Comptroller, and providing details to the

**Commented [BF1]:** This revision makes this section consistent with legislative change from 2021.

public on the Green Bank’s Web site; provided that public disclosure shall be restricted for patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may cause commercial harm to a nongovernmental recipient of such financing support and for other information exempt from public records disclosure pursuant to Section 1-210 of the General Statutes.

(e)(c) Any entity that receives financing for a clean energy or environmental infrastructure project ~~from the Clean Energy Fund (Fund)~~ shall provide the board an annual statement during the time period that funds are dispersed, certified as correct by the chief financial officer or authorized representative of the recipient of such financing, setting forth all sources and uses of funds for such project in such detail as may be required by the Green Bank. The Green Bank shall maintain any such audits for not less than five (5) years. Residential projects for buildings with one to four dwelling units are exempt from this and any other annual auditing requirements, except that residential projects may be required to grant their utility companies’ permission to release their usage data to the Green Bank.

**XII. FINANCIAL ASSISTANCE—GRANTS, LOANS OR LOAN GUARANTEES,**  
**DEBT AND EQUITY INVESTMENTS**

The procedures in this section are generally applicable to the award of grants, loans or loan guarantees, and debt and equity investments for clean energy or environmental infrastructure projects when the Board determines that one of the following methods be used in the selection and award process: (i) competitive selection and award; (ii) programmatic selection and award; or (iii) strategic selection and award. The factors to be considered in choosing the appropriate



selection and award method, and the general procedures to be followed in each such case are set forth below.

### Competitive Selection and Award

Applicability: Competitive selection and award shall be the preferred method when the Board determines that it is appropriate in the circumstances to invite and consider proposals for a particular ~~clean energy~~ project or projects in a competitive process under an established schedule and pursuant to formal qualification and selection criteria so that proposers and proposals may be evaluated fairly and thoroughly on a comparative basis.

Issuance of RFP: A request for proposals (RFP) shall be published or distributed in a manner that the Green Bank determines will promote broad participation in the competitive process. Deadlines for particular stages in the competitive selection process will be set forth in the RFP. Notice of the RFP shall be posted on the Web site of the Green Bank, may be published in one or more major daily newspapers published in the State, and may also be posted on the Web site of the Connecticut Department of Administrative Services. The RFP itself shall also be posted on the Web site of the Green Bank and shall be mailed to or otherwise made available to interested parties in a reasonable manner.

Eligibility: Each RFP shall be issued pursuant to guidelines established by the Green Bank consistent with the Green Bank's Comprehensive Plan and Annual Operating Budget. Such guidelines shall at a minimum set forth: (i) proposer qualification requirements; (ii) project eligibility criteria; (iii) the nature and amount of financial

assistance available from the Green Bank under the program; (iv) the principal selection criteria; (v) any mandatory terms and conditions under which such funding is available; (vi) applicable application, processing, or other program fees; and (vii) the process by which proposals will be considered and acted upon. Such guidelines may be modified, in whole or in part, from time to time and at any time by the Green Bank, consistent with the authorizing resolution of the Board.

Selection Criteria: Selection criteria shall include, as applicable, (i) the eligibility of the proposer; (ii) the proposer's qualifications and experience; (iii) the financial feasibility of the project, including the availability and firmness of required financing; (iv) the cost-effectiveness of the project; (v) the technological characteristics of the project, including the potential for technological improvements and advancements; the project's operational feasibility and commercial applicability; (vi) the jobs created by the project; (vii) the environmental benefits stemming from the project; and (viii) the contributions to be made by the project toward the statutory purposes of the Green Bank and the furtherance of the Comprehensive Plan. Other selection criteria may be established for any RFP, and any weighting of selection criteria shall be in the discretion of the Green Bank as provided in such RFP. If appropriate in the circumstances, then an RFP may be first issued as a request for qualifications, following which those respondents found to be qualified are invited to respond to a final RFP.

Selection Process: The selection process shall be designed to provide for a fair and thorough evaluation of each eligible and qualified proposal, and shall be described in the RFP. The selection process may include the use of a review or scoring team, which may include members of any advisory committee, members of the staff of the Green Bank,

and independent members with relevant industry, academic, or governmental experience. No member of any such review or scoring team shall have any financial or other personal interest in any proposed project. Any such review or scoring team shall act in an advisory capacity only and shall not constitute a committee or subcommittee of the Board, and the members of any such review or scoring team shall not be deemed to be public officials as a result of their service thereon. If the Green Bank determines that the responses to the RFP have been insufficient in number or quality to achieve the objectives of a competitive selection and award process or otherwise determines it to be in the best interest of the Green Bank, then the RFP may be extended, withdrawn and reissued, or cancelled at any time.

Selection Decision: One or more proposers may be selected for the purpose of entering into negotiations, if applicable, with respect to a project. Such selection shall be made by the Green Bank after taking into account the established selection criteria, any report or recommendation by staff of the Green Bank, the report of any review or scoring team, and the results of any review and recommendation by any advisory committee to the Board, applied on an equitable basis. If more than one proposal is selected, then they may be ranked in order of preference, which ranking may be based on the recommendation of staff of the Green Bank, such advisory committee, or the review or scoring team.

Notification to Proposers; Effect of Selection: All proposers shall be promptly notified of the results of the selection process. Such results may also be posted on the Web site of the Green Bank. Any such selection and notification is solely for the purpose of qualification for possible negotiation and does not constitute a financing commitment or the award of a contract.

Negotiation: The Green Bank may enter into good faith negotiations with one or more of the selected proposers at such time and in such order as the Green Bank may determine in its discretion consistent with the terms of the RFP. The commencement of such negotiations does not signify a commitment to provide financial assistance or to enter into a contract with a proposer. Either the proposer or the Green Bank may terminate such negotiations at any time for any reason. The Green Bank reserves the right to enter into negotiations with any other proposer at any time. Such negotiations shall not be limited to the scope or terms of the proposal but may include such other matters or different terms as the Green Bank may determine to be in the best interests of the Green Bank.

Award: Upon mutual agreement regarding the terms and conditions of the financial assistance, the Green Bank and the selected proposer may enter into a contract which memorializes the agreed-upon terms and conditions subject to all necessary Green Bank approvals, including the Board or a duly authorized committee of the Board.

Fees and Expenses: The Green Bank may impose reasonable application, processing, or similar fees in connection with the submission and processing of proposals, and may require, as a condition of negotiation with any selected proposer, that such proposer agree to pay costs incurred by the Green Bank, including fees and disbursements of the Green Bank's counsel, consultants, and other professional advisors. Any pre-established application, processing, or other program fees shall be set forth in the RFP.

State Contracting Requirements: Any RFP shall be subject to, and any definitive financing or contracting documents shall include, such provisions as may be required by

applicable laws or executive orders, including with respect to non-discrimination and affirmative action.

Other Terms and Conditions: Any RFP may be subject to and include such other terms and conditions, not inconsistent with the requirements of these procedures, as the Green Bank may determine in its discretion to be appropriate and in the best interests of the Green Bank.

#### Programmatic Selection and Award

Applicability: Programmatic selection and award shall be the preferred method when the Board determines that it is appropriate in the circumstances to invite applications on a continuing or periodic basis for clean energy or environmental infrastructure projects with identified characteristics and to consider such applications under pre-established program-based qualification, eligibility, and selection criteria, but that it is not necessary or appropriate to evaluate such applications on a comparative basis as part of a competitive RFP process. Any such program may be discontinued, suspended, extended, or expanded at any time by the Board based on its determination of what is appropriate and in the best interests of the Green Bank.

Program Guidelines: Each such program shall be authorized by resolution of the Board and operated and administered by the Green Bank pursuant to program guidelines established by the Green Bank consistent with such Board authorization, which shall at a minimum set forth: (i) applicant qualification requirements; (ii) project eligibility criteria; (iii) the nature and amount of financial assistance available from the Green Bank under the program; (iv) the principal selection criteria; (v) any mandatory terms and conditions

under which such funding is available; (vi) the application process, including a standard application form; (vii) applicable application, processing, or other program fees; and (viii) the process by which applications will be considered and acted upon. Such program guidelines may be modified, in whole or in part, from time to time and at any time by the Green Bank, consistent with the authorizing resolution of the Board. A general description of each such program, including the applicable program guidelines, and all such modifications, if any, shall be posted on the Web site of the Green Bank.

Approval; Terms and Conditions of Award: Applications shall be subject to the approval of the Board, or of the President or other officer of the Green Bank if and to the extent so authorized in the authorizing resolution of the Board, after taking into account any report or recommendations of the staff of the Green Bank or an advisory committee, if applicable. Financial support for a project under any such program shall be in such amount, and shall be subject to such project-specific terms, conditions, and requirements, as may be determined by the Green Bank within the limits established by the authorizing resolution of the Board and consistent with the program guidelines.

Fees and Expenses: The Green Bank may impose reasonable application, processing, or similar fees in connection with the submission and processing of proposals, and may require, as a condition of negotiation with any selected proposer, that such proposer agree to pay costs incurred by the Green Bank, including fees and disbursements of the Green Bank's counsel, consultants, and other professional advisors. Any pre-established application, processing, or other program fees shall be set forth in the applicable program guidelines.

### Strategic Selection and Award

Applicability: While the utilization of an open and public process, either competitive or programmatic, for awards from the Green Bank is anticipated most often to be in the best interest of the Green Bank and is to be strongly preferred, there are nevertheless recognized to be certain circumstances in which, based on special capabilities, uniqueness of the opportunity, urgency of need, cost, and similar factors, the public interest and the strategic mission of the Green Bank is best served by direct participation by the Green Bank in, and funding of, a particular ~~clean energy~~ project outside of an existing program and absent a competitive process of selection and award. Such strategic selection and award method may be utilized upon an affirmative resolution, adopted by a two-thirds majority of the members of the Board present at a meeting of the Board, determining that the advantages of strategic selection and award clearly outweigh the general public interest in an open and public process based on a finding that at least three (3) of the following characteristics are present and are of predominant importance to the Green Bank:

- (a) Special Capabilities: The opportunity is presented by a party with exceptional experience, expertise, or availability, or holding patent or other proprietary rights of special value to the Green Bank.
- (b) Uniqueness: The opportunity is one-of-a-kind by virtue of location, high visibility, and leverage with other already committed public or private funding or similar unique attributes.

- (c) Strategic Importance: The opportunity has exceptionally strong compatibility with the mission of the Green Bank, including the jobs created by the project or the environmental benefits stemming from the project, or offers the Green Bank an organizational role, participation in governance, a formative or other key role in the industry, high funding leverage potential, broad market reach, exceptional educational or public relations value, or similar special strategic advantages important to the Green Bank.
- (d) Urgency and Timeliness: There is an urgent need to act on the opportunity as a result of public exigency or emergency, or a strategically important opportunity would become unavailable as a result of delay, or it would take an unacceptable length of time for a similar opportunity to reach the same level of readiness.
- (e) Multiphase Project; Follow-on Investment: The opportunity relates to the next phase of a multiphase proposal or the expenditure is necessary to support or protect an existing the Green Bank investment or initiative.

Other Requirements: Awards made by strategic selection and award shall to the extent applicable be otherwise subject to the same (i) Board of Director or Deployment Committee approval requirements and (ii) procedures set forth with respect to competitive selection and award under the headings “Negotiation”, “Award”, “Fees and Expenses”, “State Contracting Requirements”, and “Other Terms and Conditions”.

If the Board of Directors approves of an open competitive process of selection and award with established criteria to encourage the investment and deployment of clean energy



~~sources and environmental infrastructure projects~~ in Connecticut, such award will not be considered a strategic selection and the additional requirements for a strategic selection shall not be required.

**XIII. ISSUING AND RETIRING BONDS, BOND ANTICIPATION NOTES, AND  
OTHER OBLIGATIONS OF THE GREEN BANK**

The Board shall approve the issuance and retirement of all bonds, bond anticipation notes, and other obligations of the Green Bank. Such approval may include, but not be limited to, their form, denominations, maturities, rates, prices, public or private sales, and other provisions important or necessary for their issuance or retirement, including the payment of all expenses, premiums, and commissions in connection therewith.

**XIV. SURPLUS FUNDS**

Surplus funds generated through the sale of bonds, bond anticipation notes, or other obligations of the Green Bank, to the extent not needed for the payment of interest and principal due on any payment of said bonds, bond anticipation notes, or other obligations, if any accrued by the Green Bank, shall be withdrawn and transferred to the Green Bank's Operating Account at such times as is permitted under applicable resolutions for the bonds, bond anticipation notes, or other obligations to be used for any lawful purposes of the Green Bank.

**XV. PERIODIC REVIEW; AMENDMENT OF PROCEDURES**

At least annually, the Audit, Compliance, and Governance Committee of the Board shall meet to review and discuss the matters addressed by these Procedures and, if deemed necessary, to make recommendations for amendment of these Procedures to Board. Amendments to these Procedures shall be effective only upon adoption of such amendments by a two-thirds vote of the Board.

\* \* \*

**CONNECTICUT GREEN BANK**  
**VICE PRESIDENT OPERATIONS**

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**Position Grade:** 19 20  
**Direct Reports:** As assigned  
**Salary Range:** \$139,873 to 223,797

**Reports to:** President & CEO  
**FLSA Status:** Exempt  
**Hours Worked:** 40  
**Effective Date:** January 1, 2022

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**SUMMARY:**

The Connecticut Green Bank's Vice President of Operations is responsible for managing, directing, and ensuring effective and efficient operations within the Connecticut Green Bank (CGB). The Vice President of Operations reports to the President & CEO and serves as a key management team member responsible for ensuring that CGB's everyday activities run smoothly.

CGB, a quasi-public authority, is the nation's first "Green Bank," leveraging public and private funds to drive investment and scale up clean energy deployment in Connecticut. Working at CGB means being part of a dynamic team of talented people who are passionate about implementing the new green bank model, stimulating the growth of clean energy in Connecticut, strengthening our economy, and protecting our environment.

**EXAMPLES OF DUTIES:**

- Operations
  - Works with the Senior Leadership team to ensure adequate control and compliance processes are established and that an appropriate system of policies, internal controls, standards, and procedures that are consistent with the mission and goals of a green bank;
  - Supervise the Office Manager and work together to ensure smooth and efficient function of the organization and that resources are allocated appropriately;
  - Serves as the Human Resources Designee for the organization to:
    - Collaboratively identify and find solutions to HR issues, including performance assessment, progressive discipline and employee counseling;
    - Strategically recruit and retain resources;
    - Facilitate training;
    - Oversee compensation program and ensure compliance with our policy and procedures and competitive salary levels;
    - Recommend and maintain an organizational structure and staffing levels to accomplish company goals and objectives;
    - Drive annual review processes;
    - Manage and supervise all personnel functions such as payroll, time and attendance systems, workers' compensation and benefits;
    - Oversees external providers of HR operations and administration support (Connecticut Innovations staff) including but not limited to benefits, payroll, and compliance;

- Evaluate organizational culture and effectiveness making recommendations to Sr. Staff for improvement.
- Planning, Budget, & Strategy
  - Lead the annual planning process for the organization with support and input from the senior leadership team;
  - Contribute to the development of CGB's strategic goals and objectives as well as the overall management of the organization;
  - Lead the development and implementation of a Comprehensive Plan and work with the President to align resources towards the plan;
  - Facilitate the organization's regular brainstorming and strategic planning;
  - Develop and assist in the implementation of new initiatives and strategic investments as appropriate;
  - Advise the President and other key members of senior management on financial planning, budgeting, cash flow, investment priorities, and policy matters;
  - Support the VP of Finance and the accounting team in monitoring revenues and expenses vs. budget for the organization and work with staff to identify cost savings.
- Organizational Infrastructure
  - Promote a culture of high performance and continuous improvement that values learning, commitment to quality, leadership and initiative;
  - Ensure all operations and resources are aligned to support the work of CGB staff including facilities in Hartford and Stamford, management of data systems and information technology and acts as a liaison with vendors in these areas to represent the best interests of CGB;
  - Ensures that there are operational systems (information technology and data storage) in place to manage the effective and efficient input of and access to information;
  - Work with staff to identify tools, resources, and improvements needed to enhance efficiency.
- Evaluation, Measurement and Verification
  - Drive and facilitate EMV efforts including studies, surveys, and evaluations across the organization;
  - Identify and codify methodologies used for EMV;
  - Supervise the Senior Manager of Data and Impact and work together to ensure appropriate metrics are in place to evaluate programs and services and develop strategies to improve operations and structures for CGB program functions, including process and workflow procedures, program performance dashboards, and other mechanisms to support effective and efficient operations.
- Asset Management, Optimization, and Risk
  - Supervise the Asset Manager
  - Establish and maintain systems and processes for monitoring CGB Investments for performance in conjunction with the Finance, Program, and the Investment Departments;
  - Work with the program teams to ensure process integrity for Renewable Energy Certificate creation and revenue generation.
- Marketing and Communications
  - Lead the marketing, outreach, and communications functions for the organization;
  - Provide strategic direction and supervise the marketing staff;
  - Manage CGB's brand to attract private investment in clean energy in Connecticut.

- Collaborate with program management teams to develop a complex product marketing mix to maximize the marketing budget through the implementation of channel marketing and other strategies;
- Formulate marketing and communications strategies that are in line with CGB's customer acquisition goals. (Key audiences and stakeholders include, but are not limited to, the general public, lending partners, contractors, building owners, government, university and business partners, Connecticut agencies, communities and other entities involved with the growth, development and commercialization of clean energy in Connecticut.);
- Oversee content development and content maintenance for various web properties including the CGB website, other product websites and other electronic communications vehicles;
- Develop short and long-term plans and budgets for marketing of programs, monitor progress, assure adherence, and evaluate performance.
- Other Duties
  - Attends Board and committee meetings and may act as a liaison to the Board on any operations matters;
  - Handles special projects as assigned;
  - May supervise staff and operations of CGB in the absence of the President and CEO;
  - Provides such general management and operational functions and other duties as required.

**MINIMUM QUALIFICATIONS REQUIRED**  
**KNOWLEDGE, SKILL AND ABILITY:**

Ability to address managerial matters with attention to detail, as well as the facility to keep in mind the larger framework. The ability to analyze and interpret financial statements. Requires considerable knowledge of business operations and general management and the ability to apply relevant State and federal laws, statutes and regulations. Requires considerable ability and willingness to function constructively as a leader of or a participant in one or more teams. Must possess considerable knowledge of and have the ability to apply management principles and techniques. Requires the ability to respond flexibly and adapt to changing circumstances. Requires considerable knowledge of the principles, procedures and applications of information systems. Considerable interpersonal skills which include oral and written communications skills, negotiating skills, strong portfolio valuation skills, and fluency with computer financial spreadsheet applications.

**EXPERIENCE AND TRAINING:**

A bachelor's degree from a recognized college or university granted in public administration, communications, political science or a related business field and ten (10) plus years professional experience in positions of increasing responsibility that involve organizational management. Administrative experience in the public or private sector preferred.

**Special Experience:**

Two (2) years of the general experience must have been at the director level (or comparable position) with responsibility for managing people, projects and/or budgets, and may include supervisory or professional experience with management-level responsibilities.

Substitutions Allowed:

1. A Master's degree in business administration or other related field may be substituted for one additional year of the general experience.

**Physical Requirements:**

1. Frequent communications, verbal and written
2. Frequent use of math/calculations
3. Visually or otherwise identify, observe and assess
4. Repetitive use of hands and fingers -typing and/or writing

**Physical Demands:** The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is frequently required to sit; use hands to finger, handle, or feel; reach with hands and arms and talk or hear. The employee is occasionally required to stand and walk. The employee must occasionally lift and/or move up to 20 pounds. Specific vision abilities required by this job include close vision.

**Work Environment:** The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. The noise level in the work environment is usually moderate.

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## Connecticut Municipal Electric Energy Cooperative (CMEEC) & US Naval Submarine Base – Groton, CT Fuel Cell Project

A Fuel Cell Debt Financing Strategic Selection  
Green Bank Term Loan Facility Extension Request  
Dec 10, 2021



**Document Purpose:** This document contains background information and due diligence on a proposed credit facility for the FuelCell Energy, Inc. (“FCE” and NASDAQ: FCEL) fuel cell project under a power purchase agreement between FCE and the Connecticut Municipal Electric Energy Cooperative (“CMEEC”) and located at the US Naval Submarine Base – Groton, CT. The information herein is provided to the Connecticut Green Bank Board of Directors for the purposes of reviewing and approving recommendations made by the staff of the Connecticut Green Bank.

In some cases, this package may contain, among other things, trade secrets and commercial or financial information given to the Connecticut Green Bank in confidence and should be excluded under C.G.S. §1-210(b) and §16-245n(D) from any public disclosure under the Connecticut Freedom of Information Act. If such information is included in this package, it will be noted as confidential.

# Strategic Selection Financing Extension Memo

**To:** Connecticut Green Bank Board of Directors  
**From:** Bert Hunter, EVP & CIO  
**Cc:** Bryan Garcia, President & CEO; Brian Farnen, General Counsel & CLO; Sergio Carrillo, Director, Incentive Programs; Jane Murphy, EVP of Finance and Administration  
**Date:** December 10, 2021  
**Re:** FuelCell Energy / US Navy / CMEEC / Groton Fuel Cell Project  
Term Loan Facility Update & Extension Request

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At the October 2021 meeting of the Connecticut Green Bank (“Green Bank”) Board of Directors (the “Board”), the Board approved an extension to complete the financing for a term loan facility to finance the 7.4 megawatt FuelCell Energy, Inc. (“FCE”) fuel cell at the US Naval Submarine Base, Groton, CT (the “Navy Project”) in partnership with and subordinated to loans (the “Senior Loans” and together with Green Bank’s loan, the “Term Loans”) from two bank lenders: Liberty Bank and Amalgamated Bank (the “Senior Lenders” and together with Green Bank, the “Lenders”).

The senior lenders and FCE have entered into a commitment for the financing, subject to finalization of diligence and credit approval, both of which are in progress. The project financing is now expected to close in December 2021 and legal meetings between the lenders have commenced. However, in an abundance of caution since the next meeting of the Board is January 21, 2022, staff requests the approval be extended to 409 days from its original approval date (to January 31, 2022).

## Resolutions

**WHEREAS**, in accordance with (1) the statutory mandate of the Connecticut Green Bank (“Green Bank”) to foster the growth, development, and deployment of clean energy sources that serve end-use customers in the State of Connecticut, (2) the State’s Comprehensive Energy Strategy (“CES”) and Integrated Resources Plan (“IRP”), and (3) Green Bank’s Comprehensive Plan (the “Comprehensive Plan”) in reference to the CES and IRP, Green Bank continuously aims to develop financing tools to further drive private capital investment into clean energy projects;

**WHEREAS**, FuelCell Energy, Inc., of Danbury, Connecticut (“FCE”) has used previously committed funding (the “Bridgeport Loan”) from Green Bank to successfully develop a 15 megawatt fuel cell facility in Bridgeport, Connecticut (the “Bridgeport Project”), and FCE has operated and maintained the Bridgeport Project without material incident, is current on payments under the Bridgeport Loan;

**WHEREAS**, FCE has requested financing support from the Green Bank to develop a 7.4 megawatt fuel cell project in Groton, Connecticut located on the U.S. Navy submarine base and supported by a power purchase agreement (“PPA”) with the Connecticut Municipal Electric Energy Cooperative (“CMEEC”) (the “Navy Project”);

**WHEREAS**, staff has considered the merits of the Navy Project and the ability of FCE to construct, operate and maintain the facility, support the obligations under the Loan throughout its 20-year term, and as set forth in the



due diligence memorandum (the “Board Memo”) dated December 18, 2020, recommended this support be in the form of a term loan not to exceed \$8,000,000, secured by all project assets, contracts and revenues as well as a pledge of revenues from an unencumbered project as explained in the Board Memo (the “Credit Facility”);

**WHEREAS**, on the basis of that recommendation, the Green Bank Board of Directors (“Board”) approved of the Credit Facility, in an amount not to exceed \$8,000,000 with the provision that the Credit Facility be executed no later than 315 days from the date of authorization by the Board (June 16, 2021) which was further extended by the Board in July 2021 to October 29, 2021 and which was further extended by the Board in October 2021 to December 31, 2021;

**WHEREAS**, Green Bank has further advised the Board that the Credit Facility is now expected to close within the next 60 days and to accommodate the additional time needed to execute the Credit Facility requests the permitted time to execute the credit facility be increased from not later than 378 days from the original date of authorization by the Board (December 31, 2021) to not later than 409 days from the date of authorization by the Board (i.e., to January 31, 2022);

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board hereby approves the extension of time for the execution of the Credit Facility to not later than 409 days from the original date of authorization by the Board (i.e., not later than January 31, 2022); and

**RESOLVED**, that the President of the Green Bank and any other duly authorized officer is authorized to take appropriate actions to provide the Credit Facility to FCE (or a special purpose entity wholly-owned by FCE) in an amount not to exceed \$8,000,000 with terms and conditions consistent with the memorandum submitted to the Board dated December 18, 2020 (the “Memorandum”), and as he or she shall deem to be in the interests of the Green Bank and the ratepayers; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents and instruments as they shall deem necessary and desirable to effect the Term Loan and participation as set forth in the Memorandum.

Submitted by: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO;

# Memo

**To:** Board of Directors, Connecticut Green Bank

**From:** Louise Della Pesca, Consultant, Clean Energy Finance and Bert Hunter, EVP & CIO

**CC:** Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Jane Murphy, EVP Finance and Administration

**Date:** December 10, 2021

**Re:** Report out on IPC term and construction solar financing

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## Introduction

In 2020, Connecticut Green Bank (“CGB”) entered into two financing facilities with Inclusive Prosperity Capital (“IPC”): a \$5 million term loan facility and a \$5 million construction financing facility. IPC uses the facilities to develop and finance solar power purchase agreement (“PPA”) projects in the state of Connecticut. The CGB Board of Directors (the “Board”) approved the arrangement of such facilities at its meeting held October 26, 2018, and the applicable resolutions are included in Appendix A. Details on the terms of each facility are found in Appendix B. The purpose of this memorandum is to provide a report to the Board on the deployment of capital under the facilities and amendments to the transaction documentation.

## Amendment

IPC partners with a tax equity investor, [REDACTED], in its ownership of solar PPA projects. As is customary in tax equity partnership structures, new legal entities are formed each calendar year to group together solar PPA projects depending on the year in which the projects are placed in service. In December 2021, IPC and [REDACTED] finalized the tax equity financing for the year 2021, resulting in the formation of new legal entities which required an administrative amendment to the term loan facility documentation. Other than these adjustments which are not material to the original documentation, there have been no changes to the terms and conditions with our loan arrangements with IPC under these facilities.

## Capital Deployment

Projects funded under the Term Loan Facility and the Construction Loan Facility are summarized in Appendix C

## Appendix A – Resolutions passed by the Board at its meeting held October 26, 2018

### **Resolution #8**

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) is uniquely positioned to continue developing a commercial solar PPA pipeline through local contractors in response to continued demand from commercial-scale off-takers;

**WHEREAS**, the market for commercial solar PPA financing continues to evolve, as various financing providers are entering the small commercial solar financing space with the ability to provide long-term financing for projects originated by the Green Bank;

**WHEREAS**, there is still demonstrated need for flexible capital to continue expanding access to financing for commercial-scale customers looking to access solar via a PPA, while both bolstering project returns for investors and enhancing project savings profiles for customers; and

**WHEREAS**, the Green Bank is implementing a Sustainability Plan that invests in various clean energy projects and products to generate a return to support its sustainability in the coming years.

**NOW**, therefore be it:

**RESOLVED**, that the Board of Directors approves funding, in a total not-to-exceed amount of \$15 million in new money, subject to budget constraints, for the continued development of commercial-scale solar PV PPA projects, to be utilized for the following purposes pursuant to market conditions and opportunities:

1. Development capital;
2. Construction financing; and
3. Financing one or more 3<sup>rd</sup>-party ownership platforms, in the form of sponsor equity and/or debt.

**RESOLVED**, that the President of Green Bank; and any other duly authorized officer of Green Bank, is authorized to execute and deliver, any contract or other legal instrument necessary to continue to develop and finance commercial PPA projects on such terms and conditions as are materially consistent with the memorandum submitted to the Green Bank Board on October 19, 2018; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect the above-mentioned legal instrument.

## Appendix B – High level terms of the CGB-IPC debt facilities

	<b>Term Loan Facility</b>	<b>Construction Financing Facility</b>
Commitment	\$5 million	\$5 million
Interest rate	Dependent on PPA project off-taker, ranging from [REDACTED]	[REDACTED]; 360 day basis
Term	Dependent on underlying project revenue contracts that act as collateral, but not to exceed 20 years	Principal and accrued interest due when project is transferred from IPC development company to IPC project owning company (i.e., late in construction timeline)
Debt service coverage ratio	1.2:1.00	n/a, interest accrues until one-time repayment
Security	Borrower's membership interests in project owning companies (this is a back leveraged facility)	Project assets (real assets and contracts)

## Appendix C – Projects Funded Under Term Loan Facility and Construction Loan Facility

### *Term Loan Facility*

CGB has advanced term financing for six solar PPA projects to date (see Table 1), deploying a total \$1.05M. The amount outstanding was \$634k at September 30, 2021<sup>1</sup>.

Table 1 – Projects financed under term debt facility

<b>Project name</b>	<b>Location</b>	<b>Size (kW)</b>	<b>Term financing</b>
Bridgeport Islamic Community Center	Bridgeport, CT	75.1	\$105k
The Country School	Madison, CT	107.1	\$137k
Washington Montessori School	New Preston, CT	185.9	\$228k
Shelton Boys & Girls Club	Shelton, CT	126.7	\$176k
East Windsor Housing Authority	Broad Brook, CT	39.6	\$63k
Ridgefield High School	Ridgefield, CT	320.0	\$339k
	<b>Total</b>	<b>854.4</b>	<b>\$1.05M</b>

### *Construction Financing Facility*

IPC has utilized the construction financing facility in the development of three projects to date (see Table 2), deploying a total \$437k. \$304k has been converted to term debt for financing East Windsor Housing Authority and Ridgefield High School. The amount outstanding at December 6, 2021 was \$134k.

Table 2 – Projects financed under construction financing facility

<b>Project name</b>	<b>Location</b>	<b>Size (kW)</b>	<b>Construction financing advanced</b>	<b>Converted to term debt?</b>
Holy Family Retreat Center	West Hartford, CT	228.8	\$134k	No
East Windsor Housing Authority	Broad Brook, CT	39.6	\$48k	Yes
Ridgefield High School	Ridgefield, CT	320.0	\$256k	Yes
	<b>Total</b>	<b>588.4</b>	<b>\$437k</b>	

<sup>1</sup> \$402k was advanced December 3, 2021, therefore not captured in the September 30, 2021 balance outstanding



When panels produce electricity to save money, they also create **Solar Home Renewable Energy Credits (SHRECs)**.

Utilities enter into **Master Purchase Agreements (MPAs)** with the Green Bank to buy SHRECs to comply with policy programs.

**Green Bonds** are created via SHREC revenue, and purchased by both individual and institutional buyers.

The **Residential Solar Investment Program (RSIP)** provides rebates and incentives to make rooftop solar more affordable for homeowners.

Revenue from MPAs and Green Bonds support RSIP incentives and cover administrative costs.

## Residential Solar Investment Program (RSIP)

Through a network of contractors, the Green Bank helped **43,000+ households** access solar energy since 2012, surpassing the statutory target of 350 MW one year ahead of the December 2022 deadline.

**\$1.33 billion**  
Total investment

**\$149.7 million**  
Total incentive

**\$0.43/W\***  
Incentive (\$31 per Zero Emission Renewable Energy Credit Equivalent)

**\$3.80/W**  
Installed Cost



### Solar Power Generation

**350 MW** Capacity  
**9,966,706 MWh** Estimated lifetime generation



### Connecticut's Solar Industry

**15,437** Jobs created  
**\$41.9 million** Tax revenue generated

**6,291 Direct**    **9,146 Indirect and induced**



### Solar and Energy Efficiency for All

- **50%** of RSIP projects have been deployed in **vulnerable communities**
- **98%** of RSIP projects had **energy audits** (i.e., Home Energy Solutions)



### SHREC Backed Bonds

Consumer demand is greater than the supply of bonds, showing consumers' high interest in supporting investment to confront climate change in Connecticut.

Green bonds are certified and verified by a third-party for consumer protection.



### Environmental Impact

Through the production of zero emission renewable energy, the lifetime reduction of greenhouse gases is equivalent to:

**5.5 million** Tons of CO<sub>2</sub>    **606,686** Homes energy use

**6.1 million** Acres of forests    **12.6 billion** Miles driven

**\$397.8 million** Public health cost reduction from cleaner air

\*Average incentive over life of the program

# Memo

**To:** Board of Directors, Connecticut Green Bank

**From:** Sergio Carrillo (Director, Incentive Programs), Bryan Garcia (President and CEO), Sara Harari (Associate Director and Senior Advisor to the President and CEO), and Ed Kranich (Senior Manager, Incentive Programs)

**CC:** Bert Hunter (EVP and CIO), Brian Farnen (General Counsel and CLO), Jane Murphy (EVP Finance & Administration), Eric Shrago (Managing Director of Operations)

**Date:** December 17, 2021

**Re:** Energy Storage Solutions – PURA Docket No. 17-12-03RE03 & Docket No. 21-08-05

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## BACKGROUND

Pursuant to Public Act 21-53 (attached hereto as Appendix A) and §§ 16-11 and 16-244i of the General Statutes of Connecticut and as implemented through Public Utility Regulatory Authority (“PURA”) Docket No. 17-12-03RE03 – *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage*, the Connecticut Green Bank (“Green Bank”) has been identified and ordered by PURA to co-administer with Eversource and United Illuminating (“EDCs”) a program to support the deployment of 580 MW of behind-the-meter storage assets by 2030 that has been named the Energy Storage Solutions program (the “Program”). The Final Decision issued December 8, 2021 (attached hereto as Appendix B, the “Final Decision”) in this Docket requires that the Program result in 50 MW of residential and 50 MW of non-residential electric storage installations in Connecticut on or before December 31, 2024, with the remaining 480 MW on or before December 31, 2030, and to support the electric storage workforce. The Program is to be funded through cost recovery from electric ratepayers.

In developing the Program with the EDCs, the Green Bank undertook the following steps:

- **Historical Performance Assessment** – assessed the historical performance of the Green Banks’ residential solar photovoltaic programs to understand consumer and workforce trends to determine best practices in supporting new technology deployment.

- **Benchmark “Best Practices”** – worked with the EDCs to understand best practices from other storage incentive programs from other states, including the Eversource ConnectedSolutions program in Massachusetts.
- **Public Comment** – since 2018, participated in numerous PURA technical meetings and open sessions for public comment to understand stakeholder opinion and requirements.
- **Survey** – conducted a survey with previous RSIP and Smart-E residential customers which received 1,864 responses from potential customers and identified the following:
  - Customer willingness to pay based on household income level.
  - Over 50% of those surveyed identified backup power in the event of a power outage as their primary motivation for interest in battery storage, followed by energy independence (23%) and saving money on energy bills (10%).
  - Nearly 70% of customers who had considered, but not purchase storage identified the primary reasons for not purchasing was that the systems were too expensive (67%) and that they were waiting for incentives (48%).
- **BCA Optimization** – commissioned a comprehensive review of the costs and benefits of a battery storage program from Guidehouse to set incentive levels, including all cost tests used by the State in designing programs.

Based on these steps and together with parallel efforts by the EDCs, the Program Administrators developed a multi-year plan to support the successful implementation of the Program – see the attached Program Manual and Marketing Plan (attached hereto as Appendix C, the “Program Manual”<sup>1</sup>, and Appendix D, the “Marketing Plan”<sup>2</sup>).

## **PROPOSAL**

The Program seeks to achieve the goal of installing at least 580 MW of behind-the-meter storage by the end of 2030, with the first three-year cycle deploying 100 MW (i.e., 50 MW residential and 50 MW non-residential) by December 31, 2024, while achieving the following benefits:

- **Vulnerable Communities** – providing additional upfront incentives to participants from vulnerable communities, including low-income households,<sup>3</sup> underserved communities,<sup>4</sup> including those living in affordable multifamily housing, such that no less than 40 percent of installations are deployed in vulnerable communities;
- **Resilience** – providing a quiet, environmentally friendly alternative to back up fossil-fueled generators to support Connecticut residents and businesses – especially critical facilities and small businesses – in the event of a grid outage;

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<sup>1</sup> As filed with PURA 10/15/2021. This document will be resubmitted to PURA with edits 12/20/2021.

<sup>2</sup> As filed with PURA 10/1/2021. This document will be resubmitted to PURA with edits 12/20/2021.

<sup>3</sup> Those less than 60% area median income that demonstrate need

<sup>4</sup> Distressed municipalities as defined by DECD



- **Ratepayer Benefits** – ensuring benefits to electric ratepayers from peak load reduction from the dispatch of the battery storage systems exceed the costs of the Program through achieving a Ratepayer Impact Measure (“RIM”)  $\geq 1.4$  demonstrating no cost shift of the Program from participants to ratepayers; and
- **Economic Development** – administering a program that fosters the sustained orderly development of a local battery storage industry.

The Program’s budget for the first three-year cycle to deploy 100 MW by December 31, 2024, includes upfront incentives administered by the Green Bank, performance incentives administered by the EDCs, marketing, legal, workforce development, technology, and evaluation, measurement and verification (EM&V) components (see Table 1).

**Table 1. Estimated Administrative Costs Required for Energy Storage Solutions (Green Bank Costs), exclusive of incentives**

	<b>CY 2022</b>	<b>CY 2023</b>	<b>CY 2024</b>	<b>Total</b>	<b>% Budget</b>
Personnel Expenses	\$789,399	\$907,404	\$1,031,778	\$2,728,851	28%
Marketing Expenses	\$578,000	\$615,000	\$550,000	\$1,743,000	18%
IT Expenses	\$750,000	\$600,000	\$600,000	\$1,950,000	20%
EM&V Costs <sup>5</sup>	\$1,111,111	\$1,111,111	\$1,111,111	\$3,333,333	34%
<b>Total</b>	<b>\$3,228,510</b>	<b>\$3,233,515</b>	<b>\$3,292,889</b>	<b>\$9,754,914</b>	

Of the \$9,754,914 funding required for the Program (which is cost recoverable), \$1,586,000 of the budget was approved by the Green Bank Board of Directors at the June 25, 2021, meeting as part of the FY 2022 budget. As indicated by the staff on prior occasion, staff is in the process of proposing a revision to the FY 2022 budget in order to be consistent with the recent PURA decision.

Not included in the above or the FY2022 budget is the cost for the upfront incentive portion of the Program, which is expected to require \$46,237,500 (see Table 2) in funding for the period January 1 through December 31, 2024 (the “Initial Incentives”) and which, pursuant to the Final Decision, is recoverable by the Green Bank from the EDCs. The EVP Finance and Administration and the CIO are working on a financial plan to enable the Green Bank to fund the Initial Incentives pending recovery from the EDCs which is expected to take up to 18 months from expenditure.

<sup>5</sup> Maximum as set by PURA, actual value currently in negotiation with competitively procured vendor Guidehouse. This cost will be shared by the EDCs based on deployed capacity by utility.

**Table 2. Estimated Program Costs Required for Energy Storage Solutions Incentives**

	<b>CY 2022</b>	<b>CY 2023</b>	<b>CY 2024</b>	<b>Total</b>
Upfront Incentive – Residential	\$4,725,000	\$8,336,250	\$13,263,750	\$26,325,000
Upfront Incentive – Non-Residential	\$2,787,750	\$5,575,500	\$11,549,250	\$19,912,500
<b>Total</b>	<b>\$7,512,750</b>	<b>\$13,911,750</b>	<b>\$24,813,000</b>	<b>\$46,237,500</b>

## **PRIVACY AND PROTECTION**

Operationally, as staff for the Green Bank Incentives Division will have access to certain information which could be considered commercially sensitive, the Managing Director of Operations will ensure that all applicant information is behind a data firewall secure from other divisions of the Green Bank that might interact with commercial enterprises seeking financing for projects submitted to the Program for incentives. Access to systems that house program data will be limited to those who are administering the program and their support.

## **RESOLUTION**

**WHEREAS**, pursuant to Public Act 21-53 (attached hereto as Appendix A) and §§ 16-11 and 16-244i of the General Statutes of Connecticut Per and as implemented through the Public Utilities Regulatory Authority (“PURA”) Docket No. 17-12-03RE03 “PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage” (“the Docket”) requires the Connecticut Green Bank (“Green Bank”) together with Eversource and United Illuminating (“EDCs”) to design, implement and administer a behind-the-meter storage program (the “Program”) that results in a minimum of five hundred and eighty (580) megawatts of new residential and non-residential electric storage installation in Connecticut before December 31, 2030.

**WHEREAS**, pursuant to the Final Decision of the Docket issued December 8, 2021 (attached hereto as Appendix B, the “Final Decision”), PURA ordered the Green Bank and the EDCs (the “Program Administrators”) to jointly administer the Program (Green Bank to administer the upfront incentive portion of the Program and be responsible for Program communication and promotion; EDCs to administer the performance incentive and the active dispatch portions of the Program; and together the Program Administrators will develop the appropriate program documents necessary to effectively implement the Program beginning January 1, 2022) pursuant to which the Green Bank has prepared the Program Manual (attached hereto as Appendix C) to offer direct financial incentives, in the form of upfront incentives for qualifying electric storage systems and Marketing Plan (attached hereto as Appendix D) to achieve the goals of customer enrollment, marketing & outreach, data aggregation & reporting, and evaluation, measurement & verification.

**WHEREAS**, pursuant to the Final Decision the Green Bank has prepared a declining incentive block schedule (“Schedule”) for the first three-year cycle of the Program that: (1) provides for a series of storage capacity blocks the combined total of which shall be a minimum of 100 megawatts of new electric storage installation in Connecticut before December 31, 2024 and projected incentive levels for each such block; (2) provides incentives (the “Incentives”) that are sufficient to meet reasonable payback expectations of residential and non-residential consumers; and (3) provides incentives that decline over time and will foster the sustained, orderly development of a state-based storage industry.

**NOW**, therefore be it:

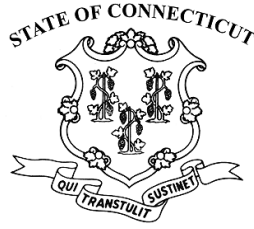
**RESOLVED**, that the Green Bank Board of Directors (the “Board”) hereby approves the Program Manual and Marketing Plan substantially in the form attached in as Appendix C and Appendix D, respectively.

**RESOLVED**, the Board directs the Green Bank to submit the proposed Program Manual to PURA pursuant to the Draft Decision in Docket No. 21-08-05.

**RESOLVED**, that the Board approves the Green Bank participation in Energy Storage Solutions as a Program Administrator, which is expected to be cost recovered pursuant to the Final Decision.

**RESOLVED**, that this Board action is consistent with Public Act 21-53 and PURA Dockets No. 17-12-03RE03 & Docket No. 21-08-05.

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect these Resolutions.



**Substitute Senate Bill No. 952**

**Public Act No. 21-53**

***AN ACT CONCERNING ENERGY STORAGE.***

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) (*Effective from passage*) On or before January 1, 2023, and annually thereafter, the Department of Energy and Environmental Protection and the Public Utilities Regulatory Authority shall report, in accordance with section 11-4a of the general statutes, to the joint standing committee of the General Assembly having cognizance of matters relating to energy regarding the quantifiable progress of energy storage deployment against the following goals:

- (1) Three hundred megawatts by December 31, 2024;
- (2) Six hundred fifty megawatts by December 31, 2027; and
- (3) One thousand megawatts by December 31, 2030.

Sec. 2. (NEW) (*Effective July 1, 2021*) (a) On or before January 1, 2022, the Public Utilities Regulatory Authority shall initiate a proceeding to develop and implement one or more programs, and associated funding mechanisms, for electric energy storage resources connected to the electric distribution system. The authority shall establish (1) one or more programs for the residential class of electric customers, (2) one or more programs for commercial and industrial classes of electric customers,

***Substitute Senate Bill No. 952***

and (3) a program for energy storage systems connected to the distribution system in front of the meter and not located at a customer premises. The authority shall solicit input from the Department of Energy and Environmental Protection, the Connecticut Green Bank, the electric distribution companies and the Office of Consumer Counsel in developing such programs.

(b) On or before January 1, 2022, the authority shall report the status of the proceeding described in subsection (a) of this section, in accordance with the provisions of section 11-4a of the general statutes, to the joint standing committee of the General Assembly having cognizance of matters relating to energy.

(c) In undertaking the proceeding described in subsection (a) of this section, the authority shall consider one or more programs and rate designs to incentivize the deployment of electric energy storage technologies connected to the electric distribution system that most effectively leverage the value of such technologies to achieve objectives including, but not limited to, (1) providing positive net present value to all ratepayers, or a subset of ratepayers paying for the benefits that accrue to that subset of ratepayers; (2) providing multiple types of benefits to the electric grid, including, but not limited to, customer, local, or community resilience, ancillary services, leveling out peaks in electricity use or that support the deployment of other distributed energy resources; (3) fostering the sustained, orderly development of a state-based electric energy storage industry; and (4) maximizing the value from the participation of energy storage systems in capacity markets. The authority shall include consideration of all energy storage configurations that are connected to the distribution system, including systems connected in front of the meter and not located at a customer premises. The authority shall also consider programs and rate designs to incentivize uses of electric energy storage technologies connected to the electric distribution system that avoid or defer investment in

**Substitute Senate Bill No. 952**

traditional electric distribution system capacity upgrades.

(d) The authority may select the Connecticut Green Bank, the Department of Energy and Environmental Protection, the electric distribution companies, a third party it deems appropriate or any combination thereof, to implement one or more programs for electric energy storage resources connected to the electric distribution system, as directed by the Public Utilities Regulatory Authority.

Sec. 3. (NEW) (*Effective July 1, 2021*) (a) The Commissioner of Energy and Environmental Protection, in consultation with the procurement manager identified in subsection (l) of section 16-2 of the general statutes and the Office of Consumer Counsel, may issue requests for proposals for energy storage projects connected at the transmission or distribution level, including stand-alone energy storage projects and energy storage projects paired with Class I renewable energy sources or hydropower facilities that have a nameplate capacity rating of not more than one hundred megawatts, that would achieve the goals in section 1 of this act in combination with programs established by the Public Utilities Regulatory Authority. If the Commissioner of Energy and Environmental Protection determines that procuring energy storage is cost effective, the commissioner shall proceed with the selection of proposals. In making this determination, the commissioner shall publish and make available for public comment a cost-effectiveness test that considers each applicable benefit provided by energy storage.

(b) In making any selection of such proposals, the commissioner shall consider factors, including, but not limited to, (1) whether the proposal is in the best interest of ratepayers, including, but not limited to, the delivered price of such sources, (2) whether the proposal promotes electric distribution system reliability, including during winter peak demand, (3) any positive impacts on the state's economic development, (4) whether the proposal is consistent with the requirements to reduce greenhouse gas emissions in accordance with section 22a-200a of the

***Substitute Senate Bill No. 952***

general statutes, and (5) whether the proposal is consistent with the policy goals outlined in the Comprehensive Energy Strategy adopted pursuant to section 16a-3d of the general statutes and the Integrated Resources Plan adopted pursuant to section 16a-3a of the general statutes. In considering whether a proposal has any positive impacts on the state's economic development, the Commissioner of Energy and Environmental Protection shall consult with the Commissioner of Economic and Community Development.

(c) Any agreement entered into pursuant to this section shall be subject to review and approval by the Public Utilities Regulatory Authority, which review shall be completed not later than one hundred twenty days after the date on which such agreement is filed with the authority. The authority shall approve any such agreement if it is cost effective and in the best interest of electric ratepayers. The net costs of any such agreement, including costs incurred by the electric distribution companies under the agreement and reasonable costs incurred by the electric distribution companies in connection with the agreement, shall be recovered through a fully reconciling component of electric rates for all customers of electric distribution companies. Any net revenues from the sale of products purchased in accordance with long-term contracts entered into pursuant to this section shall be credited to customers through the same fully reconciling rate component for all customers of the contracting electric distribution company.



# STATE OF CONNECTICUT

PUBLIC UTILITIES REGULATORY AUTHORITY  
TEN FRANKLIN SQUARE  
NEW BRITAIN, CT 06051

DOCKET NO. 21-08-05

ANNUAL REVIEW OF THE ELECTRIC STORAGE  
PROGRAM – YEAR 1

December 8, 2021

By the following Commissioners:

Marissa P. Gillett  
John W. Betkoski, III  
Michael A. Caron

**DECISION**



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# **DECISION**

## **I. INTRODUCTION**

### **A. SUMMARY**

In this Decision, the Public Utilities Regulatory Authority (Authority or PURA) approves, with modification, certain documents developed and proposed by The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource), The United Illuminating Company (UI; collectively, Eversource and UI are referred to as the electric distribution companies, or EDCs), and the Connecticut Green Bank (CGB; collectively, the EDCs and the CGB are referred to as the Program Administrators) to administer the statewide electric storage program (Electric Storage Program, or Program) available to all customers and customer classes within the service territories of the EDCs.<sup>1</sup>

### **B. BACKGROUND OF THE PROCEEDING**

On July 28, 2021, the Authority issued its Final Decision in Docket No. 17-12-03RE03, PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage (Storage Decision) establishing the Electric Storage Program pursuant to Public Act 21-53 (PA 21-53) and §§ 16-11, 16-19, 16-19e, and 16-244i of the General Statutes of Connecticut (Conn. Gen. Stat.), and in accordance with the Interim Decision dated October 2, 2019 in Docket No. 17-12-03, PURA Investigation into Distribution System Planning of the Electric Distribution Companies (Equitable Modern Grid Decision). The Authority initiated the instant proceeding to review the Year 1 Program design documents and other key compliance filings and to address other topics regarding Program implementation, as necessary.

### **C. CONDUCT OF THE PROCEEDING**

On August 11, 2021, the Authority issued the Notice of Proceeding in the above-captioned proceeding.

On or before October 4, 2021, the Program Administrators filed Motion Nos. 8 through 12 requesting Authority approval of compliance with Order Nos. 5, 6, 8, and 9 of the Storage Decision. The CGB filed a benefit-cost analysis (BCA) in compliance with Order No. 7 of the Storage Decision on October 4, 2021. On October 15, 2021, the Program Administrators filed Motion Nos. 13 through 16 requesting Authority approval of its compliance with Order Nos. 2 through 4 and 10 of the Storage Decision, including proposed program guidelines filed in compliance with Order No. 2 as Motion No. 14 (Proposed Program Guidelines). Additionally, the EDCs filed compliance with Order No. 12 on October 18, 2021. Finally, the CGB filed Motion No. 18 requesting the Authority approve its compliance with Order No. 13 on November 10, 2021.

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<sup>1</sup> This Decision specifically addresses the documents submitted in compliance with Order Nos. 2 through 6, 8, 9, 10, and 13 of the Storage Decision. Accordingly, the Decision contains the Authority's final ruling on Motion Nos. 8 through 16 and 18. This Decision also contains the Authority's final ruling on Motion No. 28 in Docket No. 17-12-03RE03. The Authority will issue separate rulings on any remaining motions for Authority review and approval.

On October 15, 2021, the Northeast Clean Energy Council (NECEC), together with the Energy Storage Association (ESA), and the Office of Consumer Counsel (OCC) filed comments on the Program Administrators' compliance with Order Nos. 5 through 9.

On October 19, 2021, the Authority issued a Notice of Request for Written Comments on the Program Administrators' compliance with Order Nos. 7 and 12, the Proposed Program Guidelines, and other key documents filed with Motion Nos. 8 through 12 and 14. Contemporaneously, PURA issued a Notice of Technical Meeting to discuss the written comments received by the Authority on or before November 2, 2021. On November 2, 2021, the Authority received four sets of written comments. Subsequently, the Authority held the publicly noticed Technical Meeting on November 9, 2021, allowing for final stakeholder comments to be submitted by November 16, 2021. On November 16, 2021, the Authority received four additional sets of comments.

The Authority issued a Proposed Final Decision on November 24, 2021 and provided an opportunity for Participants to file Written Exceptions and present Oral Argument.

#### **D. PARTIES AND INTERVENORS OR PARTICIPANTS**

A listing of all Participants to this proceeding is appended hereto as Appendix A.

## **II. LEGAL AUTHORITY**

Section 2 of PA 21-53 directed the Authority to “develop and implement one or more programs, and associated funding mechanisms, for electric storage resources connected to the electric distribution system.” Pursuant to PA 21-53, in addition to Conn. Gen. Stat. §§ 16-11, 16-19, 16-19e, and 16-244i (see, Section II of the Storage Decision), the Authority established the Program in the Storage Decision. Furthermore, Section 2(d) of PA 21-53 permits the Authority to select the CGB, DEEP, or the EDCs to implement the Program as directed by the Authority.

Herein, the Authority reviews the Program design documents developed by the Program Administrators pursuant to the direction provided in the Storage Decision, along with other key compliance ordered, including the final incentive levels calculated by the Program Administrators in accordance with Section V.E.1. of the Storage Decision. Storage Decision, p. 44.

### III. ELECTRIC STORAGE PROGRAM OBJECTIVES

In the Storage Decision, the Authority adopted the following seven (7) objectives (Program Objectives) to guide the Program Administrators in the development and implementation of the Program:

- 1) Provide positive net present value to all ratepayers, or a subset of ratepayers paying for the benefits that accrue to that subset of ratepayers;
- 2) Provide multiple types of benefits to the electric grid, including, but not limited to, customer, local, or community resilience, ancillary services, peak shaving, and avoiding or deferring distribution system upgrades or supporting the deployment of other distributed energy resources;
- 3) Foster the sustained, orderly development of a state-based electric energy storage industry;
- 4) Prioritize delivering increased resilience to: (1) low-to-moderate income (LMI) customers, customers in environmental justice or economically distressed communities, customers coded medical hardship, and public housing authorities as defined in Conn. Gen. Stat. § 8-39(b); (2) customers on the grid-edge who consistently experience more and/or longer than average outages during major storms; and (3) critical facilities as defined in Conn. Gen. Stat § 16-243y(a)(2).
- 5) Lower the barriers to entry, financial or otherwise, for electric storage deployment in Connecticut;
- 6) Maximize the long-term environmental benefits of electric storage by reducing emissions associated with fossil-based peaking generation; and
- 7) Maximize the benefits to ratepayers derived from the wholesale capacity market.

Storage Decision, pp. 5-7.

Accordingly, the Authority relied on the Program Objectives to guide its review of the Program Administrators' compliance with the Storage Decision. The Authority limited its review to ensuring compliance with the Storage Decision and providing clarity to stakeholders regarding Program implementation. Pursuant to the Storage Decision, the Authority will initiate a proceeding annually (Annual Review) "to review key metrics and ... to make small, strategic adjustments, as necessary, to ensure: (1) continued alignment with the Program Objectives; and (2) that the Program is on track to meet its three-year program cycle deployment targets." Storage Decision, p. 43. The Storage Decision further states that, "Key Annual Review filings shall be submitted on or around August 1st ...including, but not limited to: an annual report, including Program results and recommendations for Program modifications as discussed in Section V.F." *Id.* The Authority further clarifies that modifications to the Program Guidelines and other Program rules shall not occur outside of the Annual Review process without good cause and that all changes to the Program Guidelines and other Program rules may not take effect without explicit approval by the Authority through the applicable proceeding, unless otherwise directed by PURA.

Finally, the Authority reaffirms that the above listed Program Objectives shall guide the Program Administrators in their administration of the Electric Storage Program.

**IV. PROGRAM DESIGN**

**A. PROGRAM OVERVIEW**

Public Act 21-53 established statewide energy storage deployment goals, namely: (1) 300 MW by December 31, 2024; (2) 650 MW by December 31, 2027; and (3) 1,000 MW by December 31, 2030. Further, Section 2 of PA 21-53 directed the Authority to develop the Program authorized in the Storage Decision, while Section 3 authorized DEEP to competitively procure energy storage projects. In the Storage Decision, the Authority established a total Program deployment target of 580 MW by the end of 2030. The Storage Decision further authorized three-year Program cycles with interim goals of 100 MW by 2025 and 300 MW by 2028, as shown in Table 1.

**Table 1: Electric Storage Deployment Targets**

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
<b>Total</b>	<b>100 MW</b>	<b>200 MW</b>	<b>280 MW</b>	<b>580 MW</b>

Storage Decision, p. 8.

**B. BENEFIT-COST ANALYSIS**

On October 4, 2021, the CGB filed a final Program BCA pursuant to Order No. 7 of the Storage Decision. In the Storage Decision, the Authority found that the cost-effectiveness of the Program shall be measured through the following five cost tests: (1) total resource cost test (TRC); (2) program administrator cost test (PACT); (3) participant cost test (PCT); (4) societal cost test (SCT); and (5) ratepayer impact measure (RIM), which measures any potential cost shift to non-participants. Storage Decision, p. 30. Specifically, the Authority directed the CGB to propose upfront incentives that deliver a RIM of 1.4 over the first three-year Program cycle to ensure the Program will deliver on the stated Objectives, specifically the first Program Objective to provide positive net present value to all ratepayers. Id. Accordingly, the CGB’s BCA incorporated proposed modifications to the Program design to support the Program Objectives and achieve the requisite RIM in its Order No. 7 compliance. The BCA results shown in Table 2 include the CGB’s proposed revisions.

**Table 2: CGB BCA**

Sector → Cost Test ↓	Residential	Non-Residential	Total
RIM	1.26	1.55	1.39
PCT	0.97	1.04	1.00
PACT	1.63	1.94	1.77
SCT	1.32	1.59	1.44
TRC	1.32	1.60	1.45

Order No. 7 Compliance, BCA, p. 16.

## 1. CGB Proposed Revisions

To deliver a RIM equal to 1.4, the CGB proposed the following modified upfront incentives that would also encourage participant interest by maintaining a PCT greater than one (1). In the Storage Decision, the Authority directed the CGB to assume that (1) all electric storage devices are standalone (i.e., not paired with solar photovoltaic (PV) systems) and (2) 50 percent of total Program capacity is able to be monetized through the Forward Capacity Markets (FCM) of the Independent System Operator of New England (ISO-NE). Storage Decision, p. 34. The Authority directed the CGB to allow the following four specific categories of customers to retain and monetize project capacity rights as an incentive to enable the public policy goals outlined in the Program Objectives: (1) customers on the grid edge; (2) critical facilities; (3) commercial or industrial customers replacing existing fossil fuel generators; and (4) small businesses. *Id.*, pp. 21-24. Further, the Authority authorized upfront incentive caps for all customers; residential projects would be capped at 50 percent of total installed cost or \$7,500, while non-residential projects would be capped at 50 percent or a per project maximum. *Id.*, pp. 10 and 14.

In developing modified incentive structures, the CGB proposed several key revisions to the underlying assumptions. First, the CGB proposed to assume that all storage devices are paired with solar PV rather than standalone.<sup>2</sup> Order No. 7 Compliance, p. 17. To support the revision, the CGB referenced a study showing that all residential battery storage systems in Connecticut and 94.4 percent nationally are paired with solar PV, while the EDCs estimated that approximately 95 percent of battery storage systems participating in the Massachusetts ConnectedSolutions program are paired with solar PV. CGB Response to CAE-4, p. 1. Further, the CGB noted that only paired systems are currently eligible for investment tax credit (ITC) benefits and assuming that all systems are paired with solar PV would raise the PCT to one. *Id.*

The Authority accepts the CGB's revision to assume that all battery storage projects are co-located with solar PV insofar as it does not impact the RIM, but instead provides a more accurate measure of participant benefits by taking the ITC into account. The Authority's intention in directing the CGB to assume battery storage systems were standalone was to ensure that the benefits associated with any co-located solar PV projects, for which there are separate ratepayer-funded programs, were not counted twice – once in justifying the renewable energy programs authorized in Docket Nos. 21-08-02, Annual Residential Renewable Energy Tariff Program Review and Rate Setting, and 21-08-03, Annual Non-Residential Renewable Energy Tariff Program Review – Year 1, pursuant to Conn. Gen. Stat. § 16-244z, and another in justifying the cost-effectiveness of this Program. The Authority's understanding, based on the benefit-cost analyses previously provided in Docket No. 17-12-03RE03 and in compliance with Order No. 7, is that the benefits of co-located solar PV systems are not double counted; thus, the Authority adopts this revision, as it is in line with its previous direction and provides a more accurate PCT ratio.

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<sup>2</sup> In its letter in lieu of written exceptions, AmeriZone, LLC raised concerns with the level of changes recommended by the CGB in its Order No. 7 Compliance. AmeriZone Letter in Lieu of Written Exceptions, pp. 1-2. The Authority understands AmeriZone's concerns and addresses the rationale for the individual changes herein. Moving forward, the Authority will pay special attention to these categories of assumptions to ensure that the Program incentive level is appropriately set.

Next, the CGB proposed to cap the amount of Program capacity able to be monetized through the FCM. Order No. 7 Compliance, p. 4. The CGB asserted that only small business customers would likely pursue FCM benefits, as the other eligible customer categories would likely prefer to retain high reserve capacity to increase resilience instead. *Id.*; CGB Response to CAE-3, p. 1. Further, the CGB estimated that small businesses would account for approximately 12 percent of installed Program capacity and reducing the assumed FCM participation level accordingly contributes to an increased RIM in support of the Program Objectives. CGB Response to CAE-3, pp. 1-2. Therefore, the CGB proposed to limit the amount of Program capacity eligible to participate in the FCM to 25 percent. *Id.* In support, NECEC/ESA asserted that customers eligible to participate in the FCM will likely represent a small portion of Program capacity and prioritize resilience instead of FCM revenues. NECEC/ESA Correspondence, dated October 15, 2021, p. 2.

The Authority finds the new evidence provided by the CGB in this proceeding sufficiently compelling to justify lowering the assumed FCM participation level PURA previously directed the Program Administrators to use from 50 percent to 25 percent. However, as the projects that are eligible for FCM participation represent key customer segments crucial to the success of the Program (e.g., providing resilience benefits to customers on the grid edge), the Authority reaffirms that the Program Administrators shall explicitly encourage deployment from the four categories listed above through targeted marketing and other efforts, as directed in Section V.C. of the Storage Decision. The Authority will use 25 percent deployment among these categories of customers as a *benchmark* against which to measure success; however, the Program Administrators shall not limit participation by such categories of customers if 25 percent is exceeded.<sup>3</sup> If the 25 percent benchmark is exceeded, the Authority may consider revising the incentive levels in subsequent years of the Program.

Finally, the CGB did not propose a nominal upfront incentive cap for non-residential customers, proposing to limit the maximum available incentive to 50 percent of installed cost. Proposed Program Guidelines, p. 33. The CGB stated that the variety of commercial and industrial customer use cases makes it difficult to determine typical project sizes and propose an appropriate incentive cap. CGB Response to CAE-2, p. 2. Further, the CGB posited that since all storage capacity receiving upfront incentives provides grid benefits, per-project incentive caps may not be necessary. *Id.* However, if a per-project cap were to be instituted, the CGB proposed limiting system size to 1.5 times a facility's peak demand. *Id.* NECEC/ESA supported removing the non-residential incentive cap as larger projects that are likely to be pursued by such customers require higher upfront incentives. NECEC/ESA Correspondence, dated October 15, 2021, p. 3.

The Authority agrees that an incentive cap equal to 50 percent of installed cost upfront is currently sufficient. The Authority directs the Program Administrators to closely monitor the size of the non-residential projects accepted into the Program, and to alert the Authority if larger projects begin taking an outsized portion of the 50 MW assigned to non-residential systems in the first three-year Program cycle.

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<sup>3</sup> See, Section V.A.5.a. for additional information.

### a. Upfront Incentive Adders

In the Program BCA developed pursuant to Order No. 7 of the Storage Decision, the CGB included proposed upfront incentive adders for low-income customers and customers in underserved communities. Such adders were developed pursuant to the CGB's compliance with Order No. 6, filed as Motion No. 11, along with a process to verify the eligibility of such customers as directed in the Storage Decision. See, Storage Decision, p. 51. Further, in support of the Authority's goal to deploy 40 percent of residential installations in low-income households statewide and in underserved communities, the CGB proposed to target 10 percent of residential deployment in low-income households and 30 percent in underserved communities. Order No. 7 Compliance, p. 3; Motion No. 12, pp. 11-13. Accordingly, the CGB proposed separate incentive levels for each category of residential customer (i.e., Baseline, Low-Income, and Underserved Community) to achieve the deployment and RIM targets. CGB Response to CAE-9, p. 1.

To support the proposed deployment targets, the CGB provided data from the Residential Solar Investment Program (RSIP) showing that between January 2012 and July 2021, approximately 9 percent of projects were in Low-Income households and 29 percent were in Underserved Communities. Id., p. 2. The CGB also noted that the RSIP included a low-to-moderate income incentive that was significantly above the baseline incentive level.<sup>4</sup> CGB Response to CAE-10, p. 2. Further, the CGB noted that the Residential Tariff Program similarly targets 40 percent deployment in low-income and distressed municipalities, supported by adders of \$0.025/kWh and \$0.0125/kWh respectively. Id., pp. 2-3. For consistency, the CGB proposed a Low-Income adder of \$200/kWh, double the amount of the Underserved Community adder of \$100/kWh, for total Low-Income and Underserved Community upfront incentives of \$400/kWh and \$300/kWh, respectively. Order No. 7 Compliance, p. 3. The CGB stated that it believes such incentive levels will be sufficient to incentivize Program deployment in support of the Authority's Objectives. CGB Response to CAE-10, p. 2.

The Authority appreciates the CGB's proactive work to structure the upfront incentive levels to support the Program Objectives and to mirror the Residential Tariff Program. The Authority finds the deployment targets and corresponding incentive adders for Low-Income customers and Underserved Communities appropriate for use in Program Years 1 through 3. Further, the Authority fully supports the Program Administrators' goal to go beyond the 40 percent target if possible. While the Authority understands that if such goal is realized the RIM may drop below the 1.4 target, reaching greater deployment in low-income and underserved communities would achieve other crucial policy objectives fully aligned with the Program Objectives, a goal supported by DEEP. See, DEEP Letter in Lieu of Written Exceptions, p.1. The Authority will evaluate changes to these adders and metrics in future Annual or Program Review proceeding.

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<sup>4</sup> The RSIP low-to-moderate performance-based incentive was approximately 2.5 times the baseline performance-based incentive.



### i. Low-Income and Underserved Community Definitions

In the Storage Decision, the Authority authorized upfront incentive adders to prioritize electric storage deployment in low-income households and underserved communities, which align with the Residential Tariff Program established in the Interim Decision dated February 10, 2021 in Docket No. 20-07-01, PURA Implementation of Section 3 of Public Act 19-35, Renewable Energy Tariffs and Procurement Plans. Storage Decision, p. 11. Specifically, the Authority authorized the CGB to offer an upfront incentive adder to: (1) households whose income does not exceed 60 percent of the state median income; and (2) households in underserved communities using the environmental justice community definition in Conn. Gen. Stat. § 22a-20a, which includes distressed municipalities pursuant to Conn. Gen. Stat. § 32-9p, and public housing authorities.<sup>5</sup> Id., pp. 11-12. The Authority also stated that CGB may offer an upfront incentive adder to multi-unit dwellings that are eligible as residential customers and shall incorporate any relevant findings from the Residential Tariff Program. Id., p. 13. Subsequently in the Interim Decision dated October 6, 2021 in Docket No. 21-08-02 (Year 1 Residential Tariff Decision), the Authority approved residential tariff rates and corresponding Low-Income and Distressed Municipality Adders for eligible renewable energy project applications received in calendar year 2022, which clarified the eligibility criteria for such incentive adders. See, Year 1 Residential Tariff Decision, p. 14.

In Motion No. 11, which seeks Authority approval of a methodology to verify customer eligibility for the low-income customers and customers in underserved communities, the CGB defined Underserved Communities as distressed municipalities and multifamily affordable housing as contemplated by Conn. Gen. Stat. § 16-244z. Motion No. 11, pp. 4-5.

At the Technical Meeting, stakeholders expressed support for aligning the low-income and underserved community incentive adder eligibility criteria with the criteria included in the Year 1 Residential Tariff Decision. Tr. 11/9/21, p. 94. While the Low-Income definition is identical in both the Year 1 Residential Tariff and Storage Decisions, the Residential Tariff adder for underserved communities includes only distressed municipalities, as defined by the most recent list developed by the Connecticut Department of Economic and Community Development (DECD), while the Electric Storage adder also includes census blocks for which 30 percent or more of the population consists of low-income persons who are not institutionalized and have an income below 200 percent of the federal poverty level.<sup>6</sup> For simplicity and consistency in administering the Year 1 Residential Tariff and Electric Storage Programs, and based on the assumption presented in this docket by the CGB that nearly all residential electric storage

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<sup>5</sup> Conn. Gen. Stat. § 22a-20a defines Environmental Justice Community as “a United States census block group, as determined in accordance with the most recent United States Census, for which thirty percent or more of the population consists of low-income persons who are not institutionalized and have an income below two hundred percent of the federal poverty level; [or] a distressed municipality, as defined in subsection (b) of section 32-9p.” See, Department of Economic and Community Development, Distressed Municipalities, [https://portal.ct.gov/DECD/Content/About\\_DECD/Research-and-Publications/02\\_Review\\_Publications/Distressed-Municipalities](https://portal.ct.gov/DECD/Content/About_DECD/Research-and-Publications/02_Review_Publications/Distressed-Municipalities).

<sup>6</sup> See, Interim Decision dated October 6, 2021 in Docket No. 21-08-02, pp. 13-14, [http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/988aeb38bbad4d678525876600662497/\\$FILE/210802-100621.pdf](http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/988aeb38bbad4d678525876600662497/$FILE/210802-100621.pdf)

projects are expected to be paired with solar, the Authority finds it necessary and appropriate to revise the Underserved Communities incentive adder eligibility criteria to align with the Residential Tariff Program.

Accordingly, the Low-Income incentive level shall be available to households with incomes below 60 percent of the state median, while the Underserved Community incentive level shall be available to customers that reside in an economically distressed municipality, as defined by the most recent list developed by the Connecticut DECD. In future years, the Authority intends to explore the appropriateness of also including the census tracts encompassed in the Environmental Justice Community definition in Conn. Gen. Stat. § 22a-20a.

Further, pursuant to the Notice of Docket Process dated October 26, 2021 in Docket No. 21-08-02, the Authority will engage stakeholders to inform the implementation of Public Act 21-48, An Act Establishing an Energy Efficiency Retrofit Grant Program for Affordable Housing, which amended Conn. Gen. Stat. § 16-244z(b) to expand eligibility for the Residential Tariff Program to multifamily affordable housing (MFAH). The CGB may deem MFAH properties eligible to receive the Underserved Communities incentive level, and units within such a property may be considered as equivalent installations with respect to the 40 percent incentive adder target. However, the Authority notes that it may be necessary, at a later date, to consider additional Storage Program participation guidelines for MFAH based on the outcome of the Authority's investigation in Docket No. 21-08-02.

As such, the Program Administrators shall incorporate the above direction as necessary in all Program documents. Moving forward, the Authority encourages the Program Administrators to continue to ensure that the Program rules align, to the extent possible, with the Residential Tariff Program, and Electric Storage Program Objectives, and any subsequent PURA decisions. As appropriate, the Program Administrators should propose changes to the Program rules to accomplish this alignment.

## **ii. Low-Income Verification Process**

As noted above, Order No. 6 directed the CGB to propose a methodology to verify customer eligibility for the Low-Income and Underserved Community adders. See, Storage Decision, p. 51. The CGB proposed to verify customers in Underserved Communities based on the list maintained by DECD. Motion No. 11, p. 4. For Low-Income customers, the CGB proposed to implement a process similar to the one used in the RSIP, whereby contractors verified customer eligibility by collecting one item from three categories of documents for all household members with income. Id.; CGB Response to CAE-11, pp. 1-2. For contractors with less than 50 projects per year in the RSIP, the CGB audited 50 percent of projects, including a review of the relevant documents obtained by the contractors. CGB Response to CAE-11, p. 2; Tr. 11/9/21, pp. 72-73. For contractors with more than 50 projects per year, the CGB audited 15 percent of projects. Id. For the Storage Program, the CGB stated it would accept additional documents to verify Low-Income eligibility, pursuant to the Storage Decision, and modify its audit process based on the number of contractors and projects. CGB Response to CAE-11, pp. 2-3.

The Authority approves CGB's proposed methodology to verify eligibility for qualifying Low-Income customers and customers in Underserved Communities. The Authority will evaluate changes to the verification processes in future Annual proceedings. To ensure customer protection and inform any future Program modifications, the Authority directs the CGB to file a description of its contractor audit process for customers receiving the Low-Income or Underserved Community adder no later than March 1, 2022 in Docket No. 22-08-05. Last, the Authority encourages the Program Administrators to leverage the eligibility verification processes for the Residential Tariff Program adders to the extent possible.

## **2. NECEC/ESA Proposed Revisions**

In their October 15, 2021 comments, NECEC and ESA highlight that the administrative costs used in the CGB's Program BCA calculations potentially incorrectly assign costs attributable to future projects deployed under the Program to the projects deployed through the first three-year Program cycle, resulting in a suppressed RIM for the first Program cycle. NECEC/ESA Correspondence, dated October 15, 2021, pp. 2-3. Accordingly, NECEC and ESA "propose that the Authority alter that calculation such that those fixed administrative costs would be assigned proportionally to the first three-year Program cycle's percentage of the total Program MW participating in a given year." Id.

After review of the compliance filings provided by the Program Administrators, it is clear that the estimated administrative costs filed by the EDCs are preliminary. See, Tr. 11/9/21, pp. 60-62. Further, the administrative cost estimates provided to date lack specificity. See, Id.; See also, CGB Response to CAE-6, Program Administration Anticipated Cost Detail (rev). As such, the Authority is not inclined to alter the current estimates included in the CGB's BCA downward. However, the Authority agrees with NECEC and ESA that the RIM calculation should reflect actual administrative costs as accurately as possible moving forward. Accordingly, the Authority directs the Program Administrators and the evaluation, measurement, and verification consultant to review the issue raised by NECEC and ESA, and to provide any commentary or recommendations with the revised Program BCA filed annually in compliance with Order No. 22. As discussed below, the Authority will carefully monitor the 2022 Program deployment and will evaluate any necessary Program changes through Docket No. 22-08-05.

## **C. FINAL COMPENSATION STRUCTURE**

Based on the foregoing analysis, the Authority approves the incentive structure and levels as proposed by the CGB pursuant to Order Nos. 5 and 6 of the Storage Decision, as well as the associated incentive calculation methodologies. Table 3 shows the upfront incentives available for residential customers during the first Program cycle. Table 4 shows the upfront incentives available for commercial and industrial customers.

**Table 3: Residential Customer Upfront Incentives (2022-2024)<sup>7</sup>**

Incentive Step	Installed Capacity (MW)	Estimated Number of Installations	Baseline (\$/kWh)	Underserved Community (\$/kWh)	Low-Income (\$/kWh)
1	10	2,000	\$200	\$300	\$400
2	15	3,000	\$170	\$255	\$340
3	25	5,000	\$130	\$195	\$260
<b>Total</b>	<b>50</b>	<b>10,000</b>			

Order No. 7 Compliance, p. 3.

**Table 4: Commercial and Industrial Upfront Incentives (2022-2024)<sup>8</sup>**

Installed Capacity (MW)	Small Commercial (\$/kWh)	Large Commercial (\$/kWh)	Industrial (\$/kWh)
50	\$200	\$175	\$100

Order No. 7 Compliance, p. 3.

The upfront residential incentive shall be calculated using the lower of the following formulas:<sup>9</sup>

- (1) Electric storage system usable (nameplate) energy capacity (kWh) \* \$200/kWh;
- (2) 50 percent of electric storage system total installed cost; and
- (3) Maximum per project incentive of \$7,500.

The CGB previously proposed the inclusion of additional formulas. However, the CGB, NECEC, and ESA all support the removal of these formulas to ensure no unintended bias against longer duration batteries and to achieve the overall Program Objective of program simplicity. NECEC/ESA Correspondence, dated October 15, 2021, p. 3; Order No. 5 Compliance, BCA, p. 3.

The upfront commercial and industrial incentive shall be calculated using the lower of the following formulas:

- (1) Electric storage system usable (nameplate) energy capacity (kWh) \* \$200/kWh; and
- (2) 50 percent of electric storage system total installed cost.

Eligible Small Commercial customers are Commercial and Industrial (C&I) customers with peak demand less than 200 kW. Proposed Program Guidelines, p. 32. Eligible Medium Commercial customers are C&I customers with peak demand between 200 kW and 500 kW. Id. Large Commercial customers are C&I customers with peak demand greater than 500 kW. Id.

<sup>7</sup> Upfront incentives are defined based on nameplate energy capacity (kWh).

<sup>8</sup> Upfront incentives are defined based on nameplate energy capacity (kWh).

<sup>9</sup> Section V.4.b. of this Decision directs the Program Administrators to make a minor change to the nomenclature used to describe the upfront incentive calculation methodologies.

Table 5 provides a summary of the performance-based incentives for projects deployed under the first Program cycle, with performance incentives available for the first ten years after deployment. The below table splits the performance incentive by year, with higher incentives available to customers in the first five years after deployment and lower incentives available to customers in the latter five years. The CGB explained that this bifurcation of incentives by year was necessary to achieve the target RIM of 1.4. Tr. 11/9/21, pp. 49-50. NECEC and ESA supported the lowering of the performance-based incentive in the out years (6-10) in the event that it was necessary to meet the required RIM of 1.4. NECEC/ESA Correspondence, dated October 15, 2021, p. 4.

**Table 5: Performance-Based Incentives (All Customer Classes 2022-2024)**

Years 1-5		Years 6-10	
Summer (\$/kW)	Winter (\$/kW)	Summer (\$/kW)	Winter (\$/kW)
\$200	\$25	\$115	\$15
\$225 annual		\$130 annual	

Order No. 7 Compliance, p. 4.

## V. PROGRAM IMPLEMENTATION

### A. PROGRAM GUIDELINES

On October 15, 2021, the Program Administrators filed Motion No. 14 seeking Authority approval of the Proposed Program Guidelines developed pursuant to Order No. 2 of the Storage Decision. Further, Motion Nos. 13, 15, and 16 sought Authority approval of compliance with Order Nos. 10, 3, and 4 of the Storage Decision, respectively, which are contained within the Proposed Program Guidelines filed under Motion No. 14.

As noted in Section I., the Authority received two rounds of stakeholder comments regarding the Proposed Program Guidelines, first on November 2, 2021 and another on November 16, 2021. Additionally, the Authority held a Technical Meeting to discuss the Proposed Program Requirements. As an initial matter, the Authority agrees with many of the sentiments expressed by NECEC in their November 2, 2021 comments (Second NECEC Comments) submitted in the instant proceeding, including the desire to ensure simplicity in the ultimate Program design and rules. Further, the Authority also generally agrees with many of the comments provided by stakeholders, including the OCC, requesting additional clarification. The Authority finds that the Program Administrators have not only complied with the Authority's Order Nos. 2 through 4 and 10 from the Decision in Docket No. 17-12-03RE03, but have done so admirably in the amount of time provided. However, some sections of the Proposed Program Guidelines and specific rules require further consideration and modification; in many instances, such changes are as simple as clearly stating a known rule.

The Authority also agrees with and appreciates NECEC's and ESA's appeal to carefully watch deployment to ensure that the Program deployment targets are reached. The Authority reaffirms its commitment to a full review of the 2022 Program deployment through the second Annual Review process in Docket No. 22-08-05, during which the

Authority may consider whether the current incentive rates are sufficient to meet the stated deployment targets and Program Objectives.

Subject to the modifications discussed herein, the Authority hereby approves the Program Administrators' compliance with Order Nos. 2 through 4 and 10, filed as Motion Nos. 13 through 16, as incorporated into the Proposed Program Guidelines. The Authority directs the Program Administrators to make the required modifications outlined below and to file the final Program documents for Authority review and approval on or before December 20, 2021. **The Authority will accept comments on the Program documents submitted on December 20, 2021 until 4:00 pm on December 28, 2021.**

Further, as detailed in Section V.7., the Authority defers to the Program Administrators to address additional comments and requests for clarification made by stakeholders that the Authority does not explicitly address below. The Program Administrators shall clearly indicate any changes to the final Program documents made pursuant to the direction provided in Section V.7. in their December 20, 2021 filing.

Last, to better align the nomenclature of the Proposed Program Guidelines with the Residential Tariff Program documents, the Authority directs the Program Administrators to revise the document name to the "Program Manual."

## 1. Enrollment

### a. Commercial Operation Date

Under the Customer Enrollment Steps and Milestones included in Section 4.1 of the Proposed Program Guidelines, Milestone 5, Execute Interconnection Security Agreement, states in part, that "[t]he Supplier must submit a completed Interconnection Security Agreement to the Program Administrator during the Construction Phase, at which point the project incentive funds will be reserved for 12 months..."<sup>10</sup> Proposed Program Guidelines, p. 7. The summary table of the Milestone Deadlines included later in the Proposed Program Guidelines further confirms that the Commercial Operation Date must be "[w]ithin 12 [m]onths from [the] Executed ISA [(Interconnection Security Agreement)]." *Id.*, p. 9. In the Second NECEC Comments, NECEC provided the following comments regarding Milestone 5:

The Milestone Deadlines require that resources reach Commercial Operation Date within 12 months of executing an ISA. Given persistent global supply chain challenges, this timeframe will be difficult for many projects to comply with. We recommend allowing 18 months from executed ISA to Commercial Operation Date, with the option to reserve an additional 6 months with a refundable deposit.

Second NECEC Comments, p. 2.

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<sup>10</sup> The Authority notes that the quote continues on to say "...12 months (both public and private)." The Authority is unaware of any "private" incentive funds associated with the Program. The Authority recommends that the Program Administrators either delete the reference, if it was unintentionally included, or add additional context for clarity.

On November 16, 2021, CPower Energy Management (CPower) submitted written comments agreeing with NECEC that the deadline for the commercial operation date (COD) should be extended to 18 months. CPower Correspondence, dated November 16, 2021, p. 1.

Based on the comments provided by CPower and NECEC, the Authority finds that adopting an 18-month COD deadline, in line with NECEC's recommendation, is appropriate for Year 1 of the Program. The Authority will reevaluate deadlines for COD during the second Annual Review in Docket No. 22-08-05 to determine whether the global supply constraints may be alleviated before the start of Year 2 of the Program.

### **b. Inspection Failures and Delays**

Section 4.5.2 of the Proposed Program Guidelines outlines the consequences for failed or delayed inspection submissions. See, Proposed Program Guidelines, p. 11. In the Second NECEC Comments, NECEC agrees with these terms "but requests an exception to the 30-day limit for prolonged delays that are outside of a Program participant's control." Second NECEC Comments, p. 3. The Authority agrees that this is a reasonable addition. As such, the Authority directs the Program Administrators to add NECEC's requested stipulation to Section 4.5.2 providing the CGB with sole discretion to determine the reasonableness of the request to extend the 30-day limit.

### **c. Unsubscribing from the Program**

Section 4.6 of the Proposed Program Guidelines describes the process for unsubscribing from the Program. Proposed Program Guidelines, p. 11. As part of unsubscribing, the Program Administrators propose to require "proof of decommissioning." Id. The Second NECEC Comments note that this requirement is unnecessary as a project may unsubscribe from the Program and continue to operate, so long as the appropriate monies are returned to ratepayers through the Program Administrators. Second NECEC Comments, p. 3. The Authority concurs. The Program Administrators shall make the appropriate changes to address NECEC's comments regarding Section 4.6 of the Proposed Program Guidelines, requiring proof of decommissioning only if necessary.

Further, in their November 2, 2021 written comments, the OCC notes that the disposal provisions required to be included in the Program documents by the Storage Decision (see, Section V.H.) do not exist. OCC Written Comments, dated November 2, 2021, pp. 6-7. Section V.H. of the Storage Decision stated the following:

The Program Administrators shall require that the decommissioning of any electric storage system participating in the Program be completed by the operations and maintenance provider of the system, or by the original engineering, procurement, and construction (EPC) contractor. The Program Administrators shall include any language formalizing such a requirement in the Program Design Documents...

Storage Decision, p. 48.

The Program Administrators shall include a section on system disposal in line with the direction provided in Section V.H. of the Storage Decision in the Program Manual submitted to the Authority no later than December 20, 2021.

#### **d. Transfer of Enrollment**

Section 4.7 of the Proposed Program Guidelines governs the transferability of enrollment under the Program. Proposed Program Guidelines, p. 11. Under Section 4.7, the Program Administrators propose to require new occupants of a residence or facility to re-apply to participate in the Program. In the Second NECEC Comments, NECEC opined that the requirement to reapply "...may create significant difficulties, especially in the residential segment" and that "[t]he incentive should be viewed as tied to the resource, not the host customer." Second NECEC Comments, p. 3. The Authority concurs; the Authority finds no reason to require the new occupant to re-register. In their written exceptions, the EDCs agreed, but proposed that: (1) a new occupant acquiring the participating system notify the EDC of the change in ownership via a simple transfer form; and (2) if a seller removes the participating system and the new occupant wants to enroll in the Program, they be required to submit a new application. Eversource and UI Written Exceptions, pp. 4-5. The Authority approves the transfer of ownership requirements proposed in the EDCs' written exceptions, and directs the Program Administrators to amend Section 4.7 accordingly, shifting the liability of returning the prorated portion of the upfront incentive to the new occupant.<sup>11</sup> The Authority directs the EDCs to submit the Ownership Transfer Form with the Program Manual filed no later than December 20, 2021.

## **2. Eligibility**

### **a. Sole Participation in Active Dispatch**

Section 5 of the Proposed Program Guidelines states that "[s]ystems installed prior to January 1, 2022 are not eligible for the Program." Proposed Program Guidelines, p. 13. In the Second NECEC Comments, NECEC notes that this language directly contravenes the language included by the Authority in the Storage Decision, which states "[s]ystems installed prior to January 1, 2022 shall only be eligible for the performance incentive portion of the Program." Second NECEC Comments, p. 3; Storage Decision, p. 19. Further, in their written comments dated November 2, 2021, CPower notes that language addressing the eligibility of systems deployed before January 1, 2022 is also included in Section 7 of the Proposed Program Guidelines, and that the language in Section 7 similarly contradicts the explicit language included in the Storage Decision. CPower Written Comments, dated November 2, 2021, p. 3. Similarly, Becker and Becker (Becker) seek clarification of the language governing systems installed before January 1, 2022. Becker Written Comments, dated November 2, 2021, p. 2.

First, the Authority directs the Program Administrators to incorporate its explicit language cited above into the Program Manual. The Program Administrators did not

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<sup>11</sup> It is reasonable to expect that some portion of the value of the upfront incentive is transferred to the new occupant. Thus, it is similarly reasonable for the new occupant to assume the financial obligation to return the prorated upfront incentive in the event that they exit the Program.



present any new evidence or commentary to justify a departure from the Authority's direction. The Authority appreciates that such direction may have been lost in compiling the Proposed Program Guidelines. Nonetheless, the Authority reminds the Program Administrators that any departure from PURA's explicit direction requires Authority approval, and likely necessitates some level of public process.

Second, the Authority clarifies the intention of disallowing existing projects into the Program, but allowing existing projects into the Active Dispatch portion of the Program. Projects that are already financed and deployed did so without the guarantee of additional funding through this Program. The purpose of the Program's upfront incentive is to lower the overall cost of deploying electric storage so that the benefits of such systems can be realized for individual customers and all ratepayers. Systems that are already deployed do not require the overall cost of the system to be lowered as the system is already deployed. However, for systems already deployed, it may still be beneficial to all ratepayers to ensure that the potential system benefits are realized. In Eversource's territory, existing battery storage programs have the option to participate in the ConnectedSolutions program;<sup>12</sup> however, the Authority is unaware of a similar program in UI's service territory. Further, the current performance-based incentive provided by the ConnectedSolutions program of \$225 per average kW over the summer period is similar to the performance-based incentives authorized in Section IV.B.3. above.

Based on the foregoing inputs, the Authority is comfortable allowing systems that are installed prior to January 1, 2022 to participate solely in the Active Dispatch portion of the Program. Additionally, as a program similar to ConnectedSolutions does not exist in UI's territory and as the performance-based incentives for the Storage Program are similar to those for the ConnectedSolutions Program, the Authority is also comfortable allowing all new storage systems applying for the Program through Year 1 to participate only in the Active Dispatch portion of the Program. To be clear, while the systems will be eligible for the performance-based incentive, they will not be eligible for the upfront incentive. The Authority directs the Program Administrators to explicitly model the BCA for storage systems that only participate in the Active Dispatch portion of the Program and to provide any recommendations for amending the incentive levels for such participation in Year 2 of the Program in the second Annual Review in Docket No. 22-08-05.

Last, Becker specifically seeks clarification of the definition of the use of "installed". Becker Written Comments, dated November 2, 2021, p. 2. The Authority clarifies that its intention in using the term "installed" was to include systems that are currently operational and connected to the distribution system. The Authority directs the Program Administrators to incorporate the above clarification as necessary throughout the Program Manual.

#### **b. HES Requirement**

Section 5.1.2 of the Proposed Program Guidelines requires a home energy efficiency audit or similar assessment for all residential storage systems under the Program. Proposed Program Guidelines, pp. 13-14. Section III.D. of the Storage

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<sup>12</sup> See, <https://www.eversource.com/content/ct-c/residential/save-money-energy/manage-energy-costs-usage/demand-response/battery-storage-demand-response>.

Decision stated that “[t]he CGB may establish rules requiring residential customers installing standalone storage systems to complete the EDC-administered Home Energy Solutions (HES) or Home Energy Solutions – Income Eligible (HES-IE) assessment...” Storage Decision, p. 19. In the Second NECEC Comments, NECEC notes that residential storage projects co-located with solar PV projects participating in the RSIP or the new Residential Tariff Program also have requirements to perform an energy efficiency audit; thus, the requirement in Section 5.1.2 is unnecessary. Second NECEC Comments, p. 3. The CGB noted that approximately 3,000 RSIP projects started during the COVID-19 pandemic have been permitted to file an Energy Audit Customer Certification Form, which allows them to delay the audit but promise to complete it in the future. CGB Written Exceptions, p. 2. The CGB therefore proposed to require RSIP customers that do not have an energy audit on file (i.e., filed an Energy Audit Customer Certification Form) to provide documentation showing that the audit was completed.

The Authority generally agrees with NECEC that an energy audit is not necessary for residential storage projects co-located with solar PV projects, particularly as the Program BCA authorized above assumes 100 percent of all residential storage systems are co-located with solar PV (see, Section IV.B.1.). However, so long as an explicit exemption to the requirements of Section 5.1.2 is provided to storage systems co-located with solar PV projects participating under the RSIP or the Residential Tariff Program, the Authority finds that the requirements of Section 5.1.2 potentially provide electric-system and emissions benefits to all ratepayers through the deployment of energy efficiency measures, helping to achieve the first and sixth Program Objectives, while achieving the fifth Program Objective to lower barriers to entry. Accordingly, the Authority directs the Program Administrators to adopt the above exemption as part of Section 5.1.2. The Program Administrators may also require RSIP customers without an energy efficiency audit on file to provide documentation showing that an audit has been completed.

### **c. Technical Requirements**

#### **i. Round Trip Efficiency**

Section 5.2.1 of the Proposed Program Guidelines details the technical requirements for electric storage technologies eligible to participate in the Program, specifically stating that eligible storage technologies must have a minimum 85 percent round-trip efficiency. Proposed Program Guidelines, p. 14. As noted by NECEC in the Second NECEC Comments, and echoed by CPower in its November 16, 2021 correspondence, this requirement is inconsistent with the Storage Decision. Second NECEC Comments, p. 4; CPower Correspondence, dated November 16, 2021, pp. 1-2. Section III.D.4. of the Storage Decision states: “Storage technologies shall be considered (and approved or not approved) for inclusion as eligible based on their ability to satisfy program requirements and objectives, including, but not limited to, the following...70 [percent] roundtrip efficiency or greater.” Storage Decision, p. 28.

While the Authority recognizes that some ambiguity in the language included in the Storage Decision may exist, PURA clarifies that it considered the pros and cons of different roundtrip efficiency requirements in Docket No. 17-12-03RE03 and determined that a minimum requirement of 70 percent or greater was sufficient. Accordingly, the Authority directs the Program Administrators to revise the roundtrip requirement in

Section 5.2.1 of the Program Guidelines to 70 percent in the Program Manual. The Authority encourages the Program Administrators to file a motion for clarification in the future if the Authority's language or intention is unclear, as otherwise changes to the Authority's direction may be interpreted as a failure to comply.

### **i. Meter Wiring**

As noted above, Section 5.2.1 of the Proposed Program Guidelines details the technical requirements for eligible storage technologies. As part of Section 5.2.1., the Program requires that all projects should be capable of islanding from the grid during outage events, and that the wiring diagram submitted for each project indicate how islanding during outage events be accomplished. In the Second NECEC Comments, and again during the Technical Meeting, NECEC asserted the following:

[The islanding requirement] is not appropriate for commercial and industrial ("C&I") customers. C&I customers are highly diverse and energy storage installations are complex. The added cost in wiring a C&I storage installation for islanding would likely render many projects uneconomic. Unlike residential customers, many C&I customers do not install energy storage for resiliency purposes, but for a myriad of other use cases, including demand charge management.

Second NECEC Comments, p. 4; Tr. 11/9/21, pp. 112-113.

In their November 16, 2021 comments, both CPower and AmeriZone, LLC (AmeriZone) indicated their support for NECEC's proposal regarding the removal of the islanding requirements for C&I customers. CPower Correspondence, dated November 16, 2021, pp. 1-2; AmeriZone Correspondence, dated November 16, 2021, p. 2. NECEC also proposed limiting the definition of islanding to the ability to provide power to the customer during an outage. NECEC Written Exceptions, pp. 1-2.

The Authority held a robust stakeholder conversation in Docket No. 17-12-03RE03 on the various benefit streams of customer-sited battery storage, with considerable attention paid to resilience benefits in particular. The Authority's Framework for an Equitable Modern Grid in Docket No. 17-12-03, PURA Investigation into Distribution System Planning of the Electric Distribution Companies, which initially indicated the Authority's intention to open Docket No. 17-12-03RE03, lists customer resilience as the first benefit stream of electric storage. Docket No. 17-12-03RE03, Interim Decision dated October 2, 2019, p. 14.<sup>13</sup> After the occurrence of Tropical Storm Isaias in August 2020, customer resilience became an even bigger focus of the Authority's efforts in Docket No. 17-12-03RE03 and justification for the Program authorized in the Storage Decision. Specifically, Tropical Storm Isaias was discussed in both the Straw Electric Storage Program Design and the Storage Decision. Docket No. 17-12-03RE03, Notice dated January 5, 2021, p. 2; Storage Decision, pp. 5-6. Further, resilience is included as part of two Program Objectives authorized in the Storage Decision, the second Program

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<sup>13</sup> See,

[http://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/0e5fc32986954bf78525875200798b44/\\$FILE/171203-100219%20InterimDecision.pdf](http://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/0e5fc32986954bf78525875200798b44/$FILE/171203-100219%20InterimDecision.pdf).

Objective to provide multiple types of benefits and the fourth objective to prioritize delivering increased resilience.

Under the current program design, customer resilience benefits do not exist without enabling the deployed energy storage system to island. In the absence of customer resilience, storage systems deployed under the Program primarily provide peak shaving benefits, with all other benefit streams accruing as a byproduct of the storage system operating in a way that maximizes such peak shaving benefits.<sup>14</sup> In short, the requirement for eligible storage systems to have the ability to island furthers the second Program Objective to provide multiple types of benefits, while omitting such requirement does not.

Based on the emphasis on customer resilience benefits throughout the development of the Storage Program and due to the alignment of the islanding requirement with the second Program Objective, the Authority declines to remove the requirement for storage systems to have the ability to island under the Program. For clarity, the Authority limits the definition of islanding to satisfy the Program Objective to provide increased customer resilience; specifically, the storage system must be able to provide back-up power to the customer within a reasonable time in the event of an outage. The Authority understands and appreciates that this requirement may result in additional costs borne by C&I projects. Accordingly, the Authority will carefully watch the deployment under the C&I portion of the Program. If C&I project deployment begins to lag, the Authority may consider revising this requirement for future Program years.

#### **d. Technology Updates**

Section 5.2.2 of the Proposed Program Guidelines describes the frequency with which the Program Administrators will provide the Authority with an updated list of eligible storage technologies and a general process by which new storage technologies may apply for and receive eligibility. Proposed Program Guidelines, pp. 15-16. Section III.D.4. of the Storage Decision states that:

In order to ensure robust and sustained Program participation, the Authority directs the EDCs to qualify as many commercially available inverters and storage systems as possible. The EDCs shall provide annual compliance updates through the annual Program review docket on the device qualification status, including a list of all known qualified and non-qualified technology. The EDCs shall also maintain a single list of eligible electric storage technologies, to be updated on an ongoing, rolling basis. Storage technologies shall be considered (and approved or not approved) for inclusion as eligible based on their ability to satisfy program requirements and objectives...

Storage Decision, p. 28.

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<sup>14</sup> Customer resilience is distinct from other customer benefits, such as demand charge reduction, as resilience benefits achieve a public policy objective and is not financial in nature. As such, customer resilience was included in the list of benefits to be considered in achieving the second Program Objective, whereas other customer benefits were not.

In their November 2, 2021 written comments, both NECEC and OCC requested additional specificity regarding the process for new technologies to gain eligibility. OCC Written Comments, dated November 2, 2021, p. 6; Second NECEC Comments, pp. 4-5. Specifically, NECEC “recommend[ed] that the EDCs be required to review applications for eligibility within a set timeframe and, if the EDC rejects an application, be required to submit a detailed explanation for application rejection to the Authority.” Second NECEC Comments, pp. 4-5. Further, CPower requested that when a new system is determined to be eligible, the Program Administrators update the Program documents and provide notice to stakeholders. CPower Correspondence, dated November 16, 2021, pp. 3-4.

First, the Authority clarifies that while specific compliance providing the Authority with an updated list of eligible technologies need not be provided through the applicable Annual Review dockets until the appropriate time outlined in the Storage Decision, the EDCs should not only “maintain a single list of eligible electric storage technologies, to be updated on an ongoing basis,” but should also make such list available on both EDCs’ websites, the CGB’s website, and the EnergizeCT website. Such list should also be updated in the Program Manual and on all four websites as soon as practicable after a new technology is deemed eligible. The Authority reads this as the intention behind the language included in Section 5.2.2; however, for clarity, the Authority directs the Program Administrators to explicitly incorporate the above direction into the Program Manual.

Second, the Authority declines to adopt specific language limiting the amount of time the Program Administrators have to review and approve applications for new technology eligibility. As the technology eligibility application will be considered along with the Program application, the Program Administrators have already provided general guidance on the expected timing of approval elsewhere in the Proposed Program Guidelines (see, Section 4, Proposed Program Guidelines). However, the Authority agrees that it is necessary, at a minimum, for a dispute resolution process to be outlined. The Authority also concurs that requiring the EDCs to submit a detailed explanation for rejecting a technology eligibility application will promote transparency. As such, the Authority directs the following process for technologies determined to be ineligible: (1) the EDCs shall provide the applicant with a written description of why the storage technology was deemed ineligible upon making such determination; (2) the EDCs shall file with its annual compliance pursuant to Order No. 12 of the Storage Decision all written descriptions provided to technology applicants deemed to be ineligible not previously filed as part of an Order No. 12 compliance filing; (3) technology applicants deemed ineligible may provide evidence demonstrating that the EDCs’ determination was incorrect in Annual or Program Review docket in which the relevant Order No. 12 compliance is filed; (4) the Authority will address any incorrectly disqualified technologies in the appropriate Annual Review docket; (5) incorrect disqualifications may lead to penalties assessed to the EDCs for non-compliance as the Storage Decision clearly directs the “EDCs to qualify as many commercially available inverters and storage systems as possible.” Storage Decision, p. 28.

Last, the Proposed Program Guidelines references a “Battery Technology Approval Form,” which has not been submitted into the proceeding to date. Accordingly, the Authority directs the Proposed Program Guidelines with the final Program documents to be submitted no later than December 20, 2021.

### **e. Required Documentation for Eligible Contractors**

Sections 5.3.1.1 and 5.3.2.2 of the Proposed Program Guidelines outline the documentation required to be provided by eligible Contractors and third-party owners, respectively, as part of the Program application process. Proposed Program Guidelines, pp. 16-20. The data requirements of these sections are somewhat governed by the data collection and evaluation, measurement, and verification reporting requirements included in Sections V.D. and V.F. of the Storage Decision. See, Storage Decision, p. 42 and 45-46.

In the Second NECEC Comments, NECEC highlighted several data and reporting requirements that they claim “may prove challenging” to produce for project developers. Second NECEC Comments, p. 5. In its written exception, Sunrun agreed with NECEC that requiring a third-party owner (TPO) contract to show a price prior to a rebate along with expected performance payments would be challenging. Sunrun Written Exceptions, pp. 1-2. In both their November 2, 2021 and November 16, 2021 comments, CPower raised similar and additional concerns regarding the ability of project developers to produce the requisite documentation. CPower Written Comments, dated November 2, 2021, pp. 4-5; CPower Correspondence, dated November 16, 2021, p. 2. Further, in their written exceptions, CPower specifically proposed that the Program Administrators approve contractor/TPO applications in a reasonable amount of time to ensure they have access to the enrollment platform on a similar timeframe. CPower Written Exceptions, pp. 3-4.

The Authority appreciates the detailed feedback provided by NECEC and CPower in their comments. The Authority’s general preference is towards collecting all the data listed in Sections 5.3.1.1 and 5.3.2.2 of the Proposed Program Guidelines, to ensure that PURA, OCC, DEEP, along with policymakers and ratepayers, have all available data to make informed decisions not only for future years of the Program, but on related public policy matters more generally. However, the Authority does not want to create unnecessary barriers to program participation, as it violates the fifth Program Objective to lower barriers to entry. Accordingly, the Authority defers to the Program Administrators’ judgement to refine Sections 5.3.1.1 and 5.3.1.2 based on stakeholder comments. More specifically, the Program Administrators may amend Section 5.3.1.1 and 5.3.1.2 in line with NECEC, Sunrun, and CPower’s requests so long as any refinements still allow the Program to meet the data and reporting requirements outlined in the Storage Decision and the Program Objectives; the Authority encourages the CGB to collect data in a way that presents the lowest barriers to participation. Further, the Authority finds that contractor and TPO applications received in the same week should generally be approved at the same time, unless such applications are deficient. For transparency, the Authority requests a list of all approved contractors and TPOs be filed as compliance no later than March 1, 2022.

### 3. Operational Control

#### a. Minimum Control and Monitoring & Operational Agreement

Section 6 of the Proposed Program Guidelines provides a high-level overview of the operational control model, and associated requirements, planned for the Program, including minimum control and monitoring parameters. Proposed Program Guidelines, pp. 26-27. Section 6.1. of the Proposed Program Guidelines discusses the “operational agreement to manage the system dispatching and implement the right of charging strategy” that storage projects will enter into with the appropriate EDC and provides an overview of the general standards and “dispatching services” that will be a part of such agreement. Proposed Program Guidelines, pp. 27-28.

In the Second NECEC Comments, NECEC highlighted three concerns regarding these parameters: (1) that near-real time telemetry should not be interpreted as any more granular than 15-minute intervals; (2) that real-time/same day dispatch should not count against the active dispatch performance of a system, but that the system should be compensated if it performs; and (3) that the override parameters are “nebulous” and “inject considerable uncertainty into project economics.” Second NECEC Comments, pp. 5-6. During the Technical Meeting, Sunrun raised similar concerns. Tr. 11/9/21, pp. 106-108. Further, during the Technical Meeting, CPower similarly proposed reconsidering the real-time/same day dispatch requirement, and NECEC reiterated its concerns regarding this requirement. CPower Written Comments, p. 7; Tr. 11/9/21, pp. 114-115.

The Authority agrees with the comments provided by NECEC and Sunrun regarding both the telemetry and override minimum control and monitoring parameters included in Section 6 of the Proposed Program Guidelines. Regarding telemetry, while the Authority has expressed its desire for operational data at “the most granular level possible” (see, Storage Decision, p. 42), it is clear from both the record in this docket and Docket No. 17-12-03RE03 that 15-minute interval data is the most granular data that can be required without creating undue restrictions. As such, the Program Administrators may clarify that 15-minute interval data satisfies the near-real time requirement.

Regarding compensation for same day dispatch, the Authority agrees with NECEC’s position as articulated in the Second NECEC Comments and echoed by Sunrun during the Technical Meeting; the Authority directs the Program Administrators to explicitly adopt NECEC’s position stated in the Second NECEC Comments and to clarify throughout the Program Manual as needed.

Last, regarding the override provision of Section 6 of the Proposed Program Guidelines, the Authority agrees that the requirements as currently written are vague. Relatedly, in their November 2, 2021 written comments, the OCC notes that a draft operational agreement was not provided with the Proposed Program Guidelines, and requests that the “key terms” of that agreement be added to the final Program documents. OCC Written Comments, dated November 2, 2021, p. 2. While Section 6.1 currently provides some of the requested “key terms” at a high level, the Authority concurs with OCC that significantly greater detail is required to ensure the successful implementation of the Program. Indeed, much of the discussion and requests for clarification regarding Section 6 and other sections of the Proposed Program Guidelines, including concerns around the override parameters, may have been alleviated by the inclusion of a draft operational agreement.

Accordingly, the Authority directs the EDCs to file for the Authority's review and approval of a draft operational agreement by December 15, 2021. Such agreement shall clearly define the parameters around events that would trigger the override provision of the agreement. In their written exceptions, the EDCs proposed to use existing information from Eversource's ConnectedSolutions terms and conditions, adding clarification specific to the Storage Program as necessary. Eversource and UI Written Exceptions, pp. 5-6. The Authority generally finds the EDCs' proposal appropriate, so long as the Program Manual, operational agreement, or accompanying frequently asked questions (FAQs) address the following: (1) if and how the override parameters apply differently to TPO systems; (2) how customers will be notified that an override event will occur/is occurring; and (3) whether and how such override parameters would also override the passive dispatch settings for that day and/or subsequent days.<sup>15</sup>

### **b. Emergency Conditions**

Section 6.2 of the Proposed Program Guidelines discusses "emergency conditions" and indicates that "[a]n Emergency Action Plan should be established." Proposed Program Guidelines, p. 28. The use of "emergency" in Section 6.2 is confusing as "emergency" is used elsewhere in the Proposed Program Guidelines to refer to inclement weather and major storm events. Adding to the lack of clarity, Section 6.2 follows a discussion of potential override parameters to "maintain safety and reliability," which could also be defined as "emergency" events. The Authority's current understanding is that Section 6.2 refers to a third category of "emergency", specifically an "emergency" event that occurs at the residence or facility at which the storage system is located independent from the two categories of emergencies discussed above. Based on that understanding, it remains unclear what the requirements of the Emergency Action Plan are and what purpose it serves; in places it seems to be a document that would govern the operation of the battery during "emergency conditions", in other places it seems to be the on-site safety protocols that occupants and first responders would follow during these conditions.

The Authority appreciates the importance of safety and emergency preparedness. However, without further clarity, the Authority is not comfortable authorizing the inclusion of Section 6.2 in the Program Manual. If the purpose of Section 6.2 is to establish on-site safety protocols, it is unclear why the project developer would be responsible for developing these, as the Authority is unaware of any current requirements for solar PV installations or storage systems to do so. To this point, Sunrun stated the following during the Technical Meeting: "a lot of those conversations already happen with the municipalities as part of the permitting process, and...go through fire code review." Tr. 11/9/21, p. 109. If the purpose of Section 6.2 is to establish operating parameters for the storage system to be defined for "emergency conditions," the Program Administrators would need to provide examples of best practices and/or specific guidance on preferred or suggested parameters. The EDCs asserted that electric storage system suppliers should "own responsibility to provide customers required actions for emergency conditions," and stated that they would suggest customers notify their EDC customer

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<sup>15</sup> See, e.g., CGB Response to CAE-8. While not entirely analogous, CAE-8 provides an example of how to define the impact to the passive dispatch settings during grid safety and reliability events.



service center during an emergency event if the Company is required to disconnect service. Eversource and UI Written Exceptions, p. 7.

Based on the foregoing, the Authority finds the EDCs' proposed customer recommendations sufficient and declines to adopt Section 6.2 as initially drafted. Accordingly, the Program Administrators may include simplified language regarding the EDCs' related recommendations included in their written exceptions in the Program Manual filed on December 20, 2021.

#### **4. Program Dispatch and Incentive Structure**

##### **a. Data Sharing Agreement**

Section 7 of the Proposed Program Guidelines includes a list of "Program Requirements" developed by the EDCs. Proposed Program Guidelines, p. 29. Included in that list is "a real-time data sharing agreement." *Id.* The same line references "Appendix A" for an example of the data sharing agreement. The Authority believes that the reference should instead be to "Appendix B." If the Authority's understanding is correct, PURA finds that sufficient information regarding the data sharing agreement has been provided and authorizes Appendix B for use in the Program. The Authority directs the Program Administrators to modify Appendix B to incorporate language specific to the Program, and to provide the updated version with the Program Manual.

##### **b. Passive Dispatch and Upfront Incentives**

Section 7.1 of the Proposed Program Guidelines provides details on the passive dispatch parameters and the calculation methodology for the upfront incentive payments. Proposed Program Guidelines, pp. 30-33. Order No. 3 of the Storage Decision directed the Program Administrators to develop rules guiding the distribution of the upfront incentive payments. Storage Decision, p. 51. Section IV.B.3. of this Decision provides an overview of, and approves, the methodologies that will be used to calculate the upfront incentives.

On October 27, 2021 the Authority issued interrogatories CAE-3 through CAE-11 to the CGB requesting clarification and additional context on several matters related to their October 15, 2021 compliance filings. Among those interrogatories, CAE-8 requested information on the parameters around an "emergency event that permits customers to deviate from the passive dispatch parameters." The CGB provided a detailed answer in response, including suggested direction for the Authority to provide. See, CGB Response to CAE-8. The Authority finds that the CGB response to CAE-8 provides reasonable recommendations that advance the clarity of the Proposed Program Guidelines and Program rules overall. Accordingly, the Authority directs the Program Administrators to adopt CGB's recommendations and clarifications in the Program Manual.

### i. Upfront Incentive Calculation

In their November 2, 2021 written comments, both Becker and CPower requested clarification as to whether the upfront incentive will be paid out based on 100 percent of the storage system's nameplate capacity or 80 percent, as the latter is the percentage that will be used for the passive dispatch portion of the Program. Becker Written Comments, dated November 2, 2021, p. 2; CPower Written Comments, dated November 2, 2021, p. 6. Upon review, the Authority believes the source of confusion is the use of the term "usable" in the formula description. However, the same Section states earlier "80 [percent] of the usable energy capacity [in] the Passive Dispatch Program", which leads the Authority to interpret the intention of the Program Administrators to use the full nameplate capacity (termed "usable energy capacity") in calculating the upfront incentive. If the Authority's understanding is correct, PURA directs the Program Administrators to omit the word "usable" from the descriptions of the upfront incentive calculation methodologies, and to explicitly state in Section 7.1 that the full nameplate capacity, not 80 percent, will be used to calculate the upfront incentive.

Last, in their November 16, 2021 comments, NECEC proposed the following redline edits to clarify how eligibility will be determined for the different C&I upfront incentive levels (in reference to p. 32 of the Proposed Program Guidelines):

Commercial and Industrial customers are eligible for upfront incentives, administered by CGB, as defined in Table 4. The non-residential up-front incentive utilizes a single block with differentiation between small commercial, large commercial, and industrial customer types. **The applicable small commercial, large commercial, and industrial customer peak demand upfront incentive level will [be] determined based on a customer's "peak demand," defined as the average of the customer's most recent 12-months of monthly demand, where monthly demand will be the highest 30-minute interval demand each month. In the event this calculation is not possible (e.g., interval data is not available), the Program Administrators may use the billing demand in a customer's utility bill.**

NECEC Correspondence, dated November 16, 2021, p. 1.

The proposed methodology for determining commercial customer demand is similar to the methodology for determining distribution demand under Eversource's Rate 37.<sup>16</sup> To ensure consistency across C&I customers within and between both EDCs, the Authority finds NECEC's proposed redline edits reasonable. The Authority directs the Program Administrators to adopt NECEC's proposal outline above, and to include the proposed redline language in the final Program Manual.

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<sup>16</sup> See, <https://www.eversource.com/content/docs/default-source/rates-tariffs/rate37.pdf>, p. 3.

## ii. Passive Dispatch Enrolled Capacity

Section 7.1 of the Proposed Program Guidelines states that customers must enroll 80 percent of the total energy capacity (i.e., “usable energy capacity”) in the Passive Dispatch program, leaving 20 percent of capacity for “customer resilience.” Proposed Program Guidelines, p. 31. NECEC proposed that the usable energy capacity calculation factor account for a 10 percent operating reserve. Second NECEC Comments, p. 6. CPower agreed with NECEC that the usable capacity reflect an operating reserve. CPower Correspondence, dated November 16, 2021, p. 3. Sunrun also concurred, and further noted that batteries have technical limitations that prevent them from fully discharging, and requiring 80 percent enrollment in Passive Dispatch would leave customers with less than the intended 20 percent reserve capacity. Sunrun Written Exceptions, p. 1.

The Authority finds that guaranteeing a 20 percent operating reserve is appropriate to support the Program Objective to provide customer resilience. Accordingly, the Authority directs the Program Administrators to account for an operating reserve when determining the usable energy capacity in order to provide customer with a 20 percent backup reserve.

## iii. Uniform Dispatch

Section 7.1 of the Proposed Program Guidelines states, “the [energy storage system] must discharge 80 [percent] of its usable energy capacity uniformly over 5 hours to meet the passive dispatch requirement.”<sup>17</sup> Proposed Program Guidelines, p. 31. NECEC stated the following in the Second NECEC Comments:

The requirement for uniform dispatch restricts the ability for the battery to capture other revenue streams (and perhaps deliver additional benefits). This requirement essentially eliminates the ability to perform demand charge management, which is a major customer value. NECEC recommends revising this to require for the battery to discharge 80 [percent] of its usable capacity over the Passive Dispatch period, regardless of when the dispatch occurs.

Second NECEC Comments, p. 6

NECEC further asserted that their recommendation would still deliver the anticipated Program benefits over the passive dispatch window, but also proposed that the CGB conduct a BCA evaluating the impact of non-uniform dispatch to inform the Year 2 Annual Review. Id.; NECEC Written Exceptions, p. 1. In their November 16, 2021 comments, CPower expressed support for NECEC’s position, stating that the requirement to uniformly dispatch over the passive dispatch window “interferes with a customer’s ability to manage its demand charge.” CPower Correspondence, dated November 16,

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<sup>17</sup> The Authority notes that the timing of the passive dispatch window is not mentioned in Section 7.1 of the Proposed Program Guidelines. While the Authority understands that the window may be changed at a later date, PURA recommends that the Program Administrators add this timing into Section 7.1 for clarity, with any appropriate caveats.

2021, pp. 2-3. Additionally, Sunrun stated that a uniform dispatch may create problems for participants with DC-coupled storage systems co-located with solar PV systems as the total solar plus storage production during the passive dispatch period may exceed the inverter capacity. Sunrun Written Exceptions, p. 1. Sunrun proposed that uniform dispatch be preferred, but systems to be allowed flexibility for events impacted by inverter capacity limitations. Id.

The Authority is sympathetic to the assertions of NECEC, CPower, and Sunrun. All else being equal, the Authority's intention is to provide customers with as much flexibility as possible while still meeting the Program Objectives and providing customer resilience benefits (see, Section V.2.c.i.). Notwithstanding, the Authority does not find evidence to support the conclusion that the proposed change in the passive dispatch rules would result in the same level of benefits. Docket No. 17-12-03RE03 documented in detail the drivers of the benefit categories included in the Program BCA. As was explored in that docket, the ultimate Program BCA is highly dependent on the timing of storage dispatch as the greatest ratepayer benefit are derived from dispatch during just a few hours in the year. Any change to the timing of dispatch under the Program is likely to change the Program BCA. The Authority recognizes that allowing the proposed modification to the passive dispatch rules may well result in a slight change to the Program benefits when considering all systems in the aggregate. However, the recommended change would almost certainly decrease the Program BCA through increased Program costs associated with additional demand charge mitigation. The Authority similarly finds limited record evidence evaluating the impact on the Program BCA of providing additional flexibility to DC-coupled systems.

Ultimately, in the absence of an analysis demonstrating the impact on the Program BCA and due to the importance of the Program BCA in achieving the first Program Objective to provide positive net present value to all ratepayers, the Authority declines to amend the uniform dispatch requirement of the passive dispatch parameters.<sup>18</sup> The Authority encourages the Program Administrators and all stakeholders to provide the requisite analysis to justify the recommended changes to the Storage Program. Additionally, the Authority specifically directs the Program Administrators and the evaluation, measurement, and verification consultant to review the issues raised by NECEC and Sunrun, and to provide additional analysis and any commentary or recommendations with the revised Program BCA filed annually in compliance with Order No. 22. .

#### **iv. Performance Requirements**

Section 7.1 of the Proposed Program Guidelines also states that, "non-performance in passive events during this period, will result in non-compliance with program requirements and the customer will be required to return a prorated portion of the un-earned incentive as determined by CGB." Proposed Program Guidelines, p. 32. Several stakeholders, including the OCC, NECEC, and CPower, requested clarification

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<sup>18</sup> The Authority also notes that while the requirement to uniformly dispatch attenuates the demand charge benefits available to C&I customers, any customer with load that would allow them to receive demand charge benefits over the passive dispatch window will still have their demand charges mitigated to some degree.

of this clawback provision. See, OCC Written Comments, dated November 2, 2021, p. 2; Second NECEC Comments, p. 7; and CPower Written Comments, dated November 2, 2021, p.10.<sup>19</sup> More specifically, NECEC requested clarification and made the following recommendation:

NECEC recommends that Program participants be considered compliant with Passive Dispatch rules if they dispatch at 90 [percent] of expected capacity over a Program year. If, in a single year, a resource does not achieve 90 [percent] compliance, the Program participant would be required to return 10 [percent] of the Upfront Incentive (i.e., the equivalent of one year in the ten-year term) in each year of non-compliance.

Second NECEC Comments, p. 7.

NECEC further recommended that exceptions for good cause be allowed. In their November 16, 2021 comments, CPower supported NECEC's recommended clarification. CPower Correspondence, dated November 16, 2021, p. 3.

The Authority finds NECEC's recommended clarification, including the addition of an exception for good cause, to be reasonable and necessary, and directs the Program Administrators to adopt the above approach in the Program Manual with the following modifications. First, eligibility for an exception for good cause shall be at the sole discretion of the CGB, who shall ensure that any non-compliance with the passive dispatch Program requirements is tracked and taken into account in future Program BCAs once data is available. Second, the Authority directs the Program Administrators to add language in the Program Manual addressing how they will ensure that non-compliant systems make the requisite payments.

### **c. Active Dispatch and Performance Incentives**

Section 7.2 of the Proposed Program Guidelines provides details on the performance incentive levels and active dispatch parameters. Proposed Program Guidelines, pp. 33-35. Order No. 4 of the Storage Decision directed the Program Administrators to develop guidelines for the active dispatch program, with incentives paid based on the average per-event reduction across all events in a given season. Storage Decision, pp. 15-17 and 51. Rather than the ConnectedSolutions event timing contemplated in the Storage Decision (i.e., 3-hour events between 2:00 pm and 7:00 pm), the Program Administrators proposed 1-to-3-hour events that could occur between 9:00 am and 9:00 pm. Proposed Program Guidelines, p. 34. The CGB stated that such timing would allow the EDCs to provide ancillary services in addition to peak shaving. Tr. 11/9/21, p. 13.

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<sup>19</sup> CPower's initial request for clarification was focused on the 10-year program timeframe, whereas OCC and NECEC's comments were more specifically focused on the mechanics of the clawback provision.

NECEC asserted that the proposed event timing may not provide storage systems sufficient time to re-charge and respond to an active dispatch event following a passive dispatch event. Second NECEC Comments, p. 7. To prevent such situations from occurring, NECEC proposed a dispatch window from 1:00 pm to 9:00 pm. *Id.* CPower supported the NECEC proposal, noting that systems co-located with solar that dispatched in the evening would not be able to dispatch at 9:00 am the following morning. CPower Correspondence, dated November 16, 2021, p. 3.

While the Authority appreciates that lengthening the active dispatch window could provide ancillary service benefits, PURA finds that there is insufficient evidence to show that the potential benefits outweigh the uncertainty created by modifying the event timing. Accordingly, the Authority directs the Program Administrators to revise the active dispatch window to 12:00 pm to 9:00 pm., to balance the desire to lengthen the window to potentially provide ancillary service benefits with developers' concerns. Further, as discussed in Section V.A.3.a, the Program Administrators shall revise Section 7.2 to adopt NECEC's proposal to not count same day event performance against the seasonal performance measurements. The final Active Dispatch parameters are shown in Table 6.

**Table 6: Proposed Storage Program Active Dispatch Parameters**

	Summer	Winter
<b>Season Dates</b>	June 1 – September 30	November 1 – March 31
<b>Number of Events</b>	30-60	1-5
<b>Event Duration</b>	1 - 3 hours	1 - 3 hours
<b>Timing</b>	12:00 pm – 9:00 pm	12:00 pm – 9:00 pm

#### **d. Active Dispatch Incentive Rates and Average Performance**

Section 7.3 of the Proposed Program Guidelines explains the performance incentive calculation methodology. Proposed Program Guidelines, pp. 35-36. To ensure compliance with the active dispatch requirements, the Program Administrators proposed to require 15-minute interval data for the entire demand response season. *Id.*, p. 35. During the Technical Meeting, the CGB stated that it would consider developing a reasonable standard to accommodate minor lapses in data reporting. Tr. 11/9/21, p. 108.

NECEC noted that if strictly interpreted, the requirement to provide 15-minute interval data could disqualify a customer from receiving performance incentive payments for any missing data. Second NECEC Comments, p. 8. Sunrun similarly expressed concern that a lack of data for any part of the year could result in nonreceipt of the performance payment. Tr. 11/9/21, pp. 107-108. NECEC proposed that during any missing 15-minute interval data, system performance should be assumed to be zero. Second NECEC Comments, p. 8. CPower supported NECEC's proposal. CPower Correspondence, dated November 16, 2021, p. 3.

The Authority agrees with stakeholders that a minor lapse in data reporting should not require a customer to forfeit an entire season of performance incentives. The Authority directs the Program Administrators to adopt the NECEC proposal to assume zero performance when data is not reported in the Program Manual. Last, the Program

Administrators may propose additional standards for data reporting to ensure sufficient data collection in their December 20, 2021 submission. Any additional standards proposed by the Program Administrators shall be clearly identified.

#### **e. Incentive Payment Process**

Section 7.4 of the Proposed Program Guidelines describes the payment process for both the upfront and performance incentives. Proposed Program Guidelines, pp. 36-37. Specifically, Section 7.4 states that the EDCs will pay the performance incentives in an annual lump sum, as directed by the Authority in the Storage Decision. *Id.*; Storage Decision, p. 15. However, CPower noted that Section 7.4.2 states that the EDCs will pay the performance incentives following the Summer and Winter seasons, and accordingly requested clarification about payment timing. CPower Written Comments, p. 7. At the Technical Meeting, Eversource stated that customers would receive the performance incentive six to eight weeks after the season. Tr. 11/9/21, p. 31.

The Authority clarifies that its direction in the Storage Decision should have read: “an annual, lump-sum payment **for each season.**” Accordingly, the Authority hereby directs the Program Administrators to modify Section 7.4 and 7.4.2 to state that customers will receive performance payments six to eight weeks following the end of the Summer and Winter seasons, including the date of the end of each season (i.e., September 30 and March 31). Further, the Program Administrators shall provide customers with such information in all relevant Program documents.

### **5. Storage Configuration Considerations**

#### **a. ISO-NE Market Participation Process**

Sections 8.1 through 8.3 of the Proposed Program Guidelines describe storage configuration requirements regarding ISO-NE capacity rights. Pursuant to the Storage Decision, certain customers are eligible to request capacity rights from the CGB. Section IV.B. Order No. 10 directed the CGB to propose an ISO-NE market participation verification process in an effort to understand how such participation interacts with the Program’s passive and active dispatch settings. Storage Decision, pp. 26 and 52. On October 15, 2021, the CGB filed Motion No. 13 for Authority approval of its compliance with Order No. 10 contained within the Proposed Program Guidelines.

Eligible projects under each customer category would be required to inform the Program Administrators during the application process whether they intend to participate in the ISO-NE FCM, and accordingly request the capacity rights. Proposed Program Guidelines, pp. 39-40. Further, critical facilities, C&I customers with fossil fuel generators, and small business customers would be required to submit a resiliency plan to demonstrate how their system would be recharged when grid-charging is otherwise unavailable. *Id.* C&I customers with fossil fuel generators would further be required to provide proof that their fossil fuel generator will be decommissioned. *Id.*, p. 40. To verify ISO-NE participation, the CGB proposed to require system owners or aggregators to submit a self-certification stating the days and hours they participated in a market. *Id.* The Program Administrators proposed to cap the amount of capacity eligible to participate in ISO-NE markets at 25 percent. *Id.*

CPower proposed that customers who do not provide notice during the application phase retain the right to participate in the future so long as they provide notice to the Program Administrators. CPower Written Comments, p. 8. Regarding ancillary services markets, CPower proposed revising the language to allow participation “provided that such participation does not prevent them from being treated as load reducers for purposes of developing the load forecast used in calculating the Installed Capacity Requirement.” *Id.* The OCC similarly requested clarification that participants may only request capacity rights through the application process. OCC Written Comments, pp. 4-5. Further, the OCC proposed additional reporting requirements for customers that participate in ISO-NE markets, including the compensation received and compensation mechanisms. *Id.*, p. 5.

AmeriZone proposed removing the 25 percent ISO-NE market participation cap, asserting that the cap would contradict the Authority’s Program Objectives to address resilience for certain customers. AmeriZone Correspondence, dated November 16, 2021. The CGB and NECEC/ESA both asserted that actual participation would likely be lower than 25 percent. CGB Order No. 7 Compliance, p. 4; NECEC/ESA Correspondence, dated October 15, 2021, p. 2.

In granting certain categories of customers the ability to request capacity rights, the Authority’s intent was to support the Program Objectives to increase local and community resilience and to prioritize delivering increased resilience to critical facilities and customers on the grid edge who experience more and/or longer than average outages during major storms. Storage Decision, p. 21. As the CGB and NECEC/ESA asserted that actual participation would likely be less than 25 percent, the Authority finds that continued access to capacity rights is not likely to significantly impact the RIM, particularly in the near term. To provide the targeted customer classes with continued access to potential ISO-NE benefits, the Authority directs the Program Administrators to annually provide eligible customers an opportunity to request capacity rights from the CGB, so long as they provide the required documentation at that time.

Further, as proposed by the OCC, the Authority directs the Program Administrators to amend Section 8.2 to include the following in the seasonal self-certification of market participation: (1) whether the customer participated in ISO-NE markets; (2) the market they participated in; (3) the days and hours of such participation; (4) the compensation received for each event; and (5) whether the compensation is from a third-party aggregator or directly from the market net of administrative fees. *See*, OCC Written Comments, dated November 2, 2021, p. 5; OCC Letter In Lieu of Written Exceptions, p. 2.

Finally, as discussed in Section IV.B., the Authority directs the Program Administrators to remove the 25 percent capacity cap on FCM participation. The Authority will review FCM participation data from Program Year 1 to consider whether an FCM participation cap is warranted.



## **b. Customers on the Grid Edge**

Section 8.1.1. of the Proposed Program Guidelines describes the eligibility requirements for grid edge customers to qualify to request ISO-NE FCM capacity rights from the CGB. Proposed Program Guidelines, p. 39. Section 8.1.1. further states that maps of qualifying circuits will be located on each EDC's website. Pursuant to Order No. 8 of the Storage Decision, on October 1, 2021, Eversource and UI filed Motion Nos. 8 and 9, respectively, for Authority approval of such grid edge maps. Eversource provided an estimated budget to develop and maintain its proposed Grid Edge Criteria Circuit Map, approximating \$133,000 in 2021 for development and \$10,500 annually for maintenance. Eversource Response to CAE-12. UI estimated \$19,550 in initial development costs for its proposed Grid Edge Map and \$10,350 in annual maintenance costs. UI Response to CAE-14.

The Authority approves the EDCs' Grid Edge Circuit Maps and accompanying maintenance plans. However, the Authority defers final approval of the proposed costs, and will view the prudence during the appropriate RAM proceeding, as discussed in Section V.B.3.

## **6. List of Eligible Electric Storage Systems**

Order No. 12 of the Storage Decision directed the EDCs to provide a list of all electric storage systems that are eligible for the Program. Storage Decision, p. 52. The Program Administrators included the requisite list as Appendix A to the Proposed Program Guidelines. On October 18, 2021, the EDCs submitted a compliance filing indicating that its compliance with Order No. 12 was included in the Proposed Program Guidelines.

CPower and Becker proposed including specific technologies in the EDCs' proposed list. Further, Becker also requested that all electro-chemical systems capable of communicating with the EDCs' dispatch platforms be considered eligible. Becker Comments, pp. 2-3. Several stakeholders also noted in their written exceptions that the current list of eligible technologies pertains almost exclusively to residential storage systems. See, NECEC Written Exceptions, p. 2; SolarConnecticut (SolarConn) Written Exceptions, pp. 1-2; CPower Written Exceptions, p. 5; and AmeriZone Letter in Lieu of Written Exceptions, p. 3. SolarConn further recommended that the Program Administrators review and include all applicable storage systems included on the California Energy Commission's Solar Equipment List. SolarConn Written Exceptions, p. 2.

The Authority reiterates that the list included in Appendix A to the Proposed Program Guidelines should include all systems that are capable of communicating with the EDCs' DERMS, including systems for use in both residential and C&I applications. The EDCs shall evaluate all systems noted by Participants, including those listed on the California Energy Commission's Solar Equipment List, for inclusion with the Program Manual to be filed December 20, 2021.<sup>20</sup> The Program Administrators shall transmit the final list of eligible systems via email to their relevant contacts within the electric storage industry, along with the approved Battery Technology Approval Form, in January 2022.

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<sup>20</sup> See, CPower Written Exceptions, p. 5; AmeriZone Letter in Lieu of Written Exceptions, p. 3; Becker Written Comments, dated November 2, 2021, p. 2; etc.

## 7. Other Changes and Clarifications

The Authority limited the scope of Sections A.1. through A.6. above to those issues on which PURA determined that explicit direction was necessary. Notwithstanding the following stipulations, the Program Administrators may address or incorporate any additional requests for clarification, recommendations, or other commentary raised by stakeholders in the correspondences and written comments submitted on November 2, 2016 and November 16, 2021 not explicitly covered by the Authority, at their discretion. First, any modifications to the Proposed Program Guidelines incorporated into the Program Manual shall be made to ensure that the Program better achieves the Program Objectives. Second, the Program Administrators shall either address through the Program Manual or the Program FAQs the following from the November 2, 2021 written comments: OCC's comments on Section 7.1 of the Proposed Program Guidelines; NECEC's additional comments on Sections 4.2, 4.4, and 5.2; CPower's additional comments on Sections 4.1, 4.4, and 5.3; and Sunrun's written exceptions on usable energy capacity, uniform dispatch, and TPO contract requirements. OCC Written Comments, dated November 2, 2021, p.3; Second NECEC Comments, p. 4; CPower Written Comments, dated November 2, 2021, pp. 1-6; CPower Written Exceptions, pp. 1-4; and Sunrun Written Exceptions, pp. 1-2. Last, the Program Administrators shall clearly indicate any changes to the Program Manual and other Program documents made pursuant to this section in its December 20, 2021 filing.

### B. PROGRAM ADMINISTRATION

#### 1. Marketing

Order No. 9 of the Storage Decision directed the CGB to develop a communication and promotion plan (Marketing Plan). Storage Decision, p. 51. Further, the Storage Decision directed the CGB to conduct a targeted communication and outreach campaign to recruit specific categories of customers to the Program, including customers in environmental justice communities, customers on the grid edge, critical facilities, facilities with existing fossil fuel generators, and small business customers. *Id.*, p. 41. On October 4, 2021, the CGB filed Motion No. 12 for Authority approval of its proposed Marketing Plan, developed in coordination with the EDCs. The CGB stated that it plans to first distribute information about the Program to all customers prior to targeting specific customer classes and technology applications. Tr. 11/9/21, pp. 33-34. The CGB also stated that it would focus its general marketing efforts on residential customers that installed solar PV through the RSIP. Tr. 11/9/21, p. 35. The CGB further explained that their targeted marketing to low-income and underserved communities would utilize emails to recruit customers that have already participated in the RSIP and received the low-income incentive under the RSIP. *Id.*, pp. 35-36.

The Authority finds the Program Administrators' proposed Marketing Plan in compliance with the Storage Decision. Further, the Authority appreciates the CGB's planned efforts to ensure the Program achieves its stated target of deploying 40 percent of systems in low-income and Underserved Communities. In an effort to improve transparency, the Authority directs the CGB to submit examples of any marketing emails sent to potential Low-Income customers and customers in Distressed Municipalities at the time of first issuance.

### **a. Stakeholder Resources**

In addition to Program Design Documents, Order No. 2 of the Storage Decision directed the Program Administrators to provide stakeholder resources, including an FAQs document. Storage Decision, pp. 41 and 51. In response to CAE-1, the Program Administrators identified a full list of stakeholder resources being developed pursuant to the Storage Decision as follows:

- (1) Proposed Program Guidelines;
- (2) Press Release to announce Program launch;
- (3) Program Training for contractors;
- (4) Interim webpage with general Program information;
- (5) EDC and EnergizeCT webpages with Program information;
- (6) Webinars providing general information starting in November 2021;
- (7) Sell Sheets for various segments to provide sales/educational information;
- (8) Final Program webpage with all relevant Program information;
- (9) Videos/Program Guides to help educate customers;
- (10) Case Studies of 2022 customer installations; and
- (11) Demonstration Projects to spread knowledge of batteries.

Program Administrator Response to CAE-1.

The CGB further stated that it is developing FAQs as part of its stakeholder resources. Tr. 11/9/21, pp. 55-56.

The Authority appreciates the Program Administrators' proactive approach to ensuring a successful Program launch in January 2022 in support of the Program Objectives. The Authority directs the Program Administrators to file with the Authority the dates, times, and locations (including web links) of the webinars to be held in calendar year 2021 and the first quarter of 2022 no later than January 28, 2021, or one week before the first webinar, whichever occurs first.

## **2. EM&V**

On August 13, 2021, the Program Administrators filed Motion No. 1 for Authority approval of their compliance with Order No. 1 of the Storage Decision, which directed the Program Administrators to submit "a proposed RFP to retain a third-party [evaluation, measurement, and verification (EM&V)] Consultant for the first three-year program period." Storage Decision, p. 53. The Authority approved the EM&V Consultant RFP on September 10, 2021 subject to select modifications, which the CGB subsequently incorporated and refiled as correspondence on September 20, 2021. On November 10, 2021, the CGB notified the Authority that, in consultation with the EDCs, DEEP, and the OCC, it selected Guidehouse as the EM&V Consultant for the first Program cycle and would begin finalizing a contract and working on program metrics. See, CGB Correspondence, dated November 10, 2021.

The Authority appreciates the Program Administrators' efforts to thoroughly evaluate and select an EM&V Consultant to support the Program Objectives. The Authority looks forward to reviewing the proposed Program metrics, calculation methodologies, and data requirements developed by the Program Administrators in consultation with Guidehouse pursuant to Order No. 16 of the Storage Decision.

### 3. Order No. 13

The Storage Decision directed the Program Administrators to “work together ... to use a shared platform or integrated systems that collect(s) customer information” with a common customer interface between service territories. Storage Decision, p. 39-40. Accordingly, Order No. 13 of the Storage Decision directed the Program Administrators to file the name and description of the customer enrollment platform and details regarding the customer application process. *Id.*, p. 52 The CGB filed Motion No. 18 on November 10, 2021 on behalf of the Program Administrators requesting approval of compliance with Order No. 13.

In Motion No. 18, the CGB stated that it is building a Salesforce-based customer enrollment platform (Platform) in collaboration with the Craftsman Technology Group, who built and maintains the CGB’s Commercial Property Assessed Clean Energy (CPACE) platform. Motion No. 18, p. 1. The Platform would allow (1) contractors and TPOs to become eligible to participate; and (2) suppliers to submit upfront incentive applications on behalf of customers enrolling in the Program. *Id.* The CGB estimated Year 1 costs of approximately \$750,000 and Year 2 and 3 costs of \$600,000 per year for systems design and maintenance, including software licensing. *Id.*, pp. 3-4. The estimated costs also include a visualization platform to aggregate and anonymize various Program and external data to create a visual representation of Program metrics, estimated at \$300,000 in Year 1 and \$250,000 in both Years 2 and 3. *Id.*, p. 4.

The Authority approves the Program Administrators’ compliance with Order No. 13 under the assumption that similar information specific to each EDC will be provided in compliance with Order No. 18 of the Storage Decision. The Authority’s approval of the Order No. 13 compliance is limited to an acknowledgement that the proposal satisfies the Program Administrators’ compliance obligation, it should not be construed in any way as pre-approval of the costs associated with the customer enrollment platform and associated enrollment processes. The Authority will review the prudence of the actual costs incurred in the relevant RAM proceeding, as discussed in the below Section.

### 4. Program Administration Costs

The CGB provided program administration costs through 2033 associated with capacity deployed through the first Program cycle (i.e., 100 MW deployed in 2022 through 2024), estimated to be approximately \$15.6M. CGB Response to CAE-6, Attachment A. The EDCs provided estimated program administration costs through 2022 associated with all capacity deployed through the Program (i.e., 580MW deployed in 2022 through 2030), which totaled \$25.6M for Eversource and \$27.8M for UI. *Id.*, See also, Tr. 11/9/21, pp. 60-62 and 84-86.

NECEC and ESA noted that the estimated administrative costs accounts for approximately 26 percent of total Program costs included in the RIM test. NECEC/ESA Correspondence, dated October 15, 2021, pp. 2-3. The OCC also observed that the estimated administrative costs are high and requested that the Program Administrators provide further details. OCC Written Comments, dated November 2, 2021, p. 7. Further, the OCC requested that the EM&V Consultant costs be subject to a hard cap, rather than

the five percent of total Program costs for any three-year Program cycle authorized in the Storage Decision. Id.

The Authority generally agrees with the comments provided by NECEC, ESA, and the OCC that the estimated administration costs appear high. Despite these high administrative costs, and including them, the CGB confirmed that the expected RIM for the first Program cycle is 1.4. Tr. 11/9/21, p. 63. It is, however, still in the public interest for the Program administrative costs to be minimized as a reduction in these costs will result in increased net benefits to all ratepayers. As such, the Authority directs the Program Administrators to minimize their administrative costs to the extent possible.

Further, the Authority reminds the Program Administrators that each of them (i.e., UI, Eversource, and CGB) individually bear the burden of proving the prudence of all administrative costs associated with the Program. To demonstrate prudence, the Program Administrators will need to provide sufficiently detailed cost information and evidence to support the finding that all efforts were taken to minimize costs, including, but not limited to, evidence that: (1) reasonable competitive procurement processes were held;<sup>21</sup> (2) existing internal resources were leveraged to the extent possible; (3) investments in new resources were selected with current and future investments, programs, and public policies in mind; and (4) unnecessary costs were avoided.<sup>22</sup> Out of an abundance of caution, the Authority is in no way pre-approving the estimated Program administrative costs provided to date; the approval of any Program administrative costs will be done through the appropriate RAM proceeding, as discussed further in the below subsection.<sup>23</sup>

Last, based on estimated administrative costs provided in the Excel workbook titled, "Program Administration Anticipated Cost Detail (rev)", it appears that a flat cap of \$1.1 million is being applied to the Program EM&V budget. See, CGB Response to CAE-6, Program Administration Anticipated Cost Detail (rev). The Authority confirms this interpretation.

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<sup>21</sup> The information submitted by the EDCs in their written exceptions provides an example of some of the information that should be provided to demonstrate that reasonable competitive procurement processes were held. See, Eversource and UI Written Exceptions, p

<sup>22</sup> At the Technical Meeting, Eversource requested that the Authority "address its standard of review for the costs that will be incurred." Tr. 11/9/21, pp. 91-92.

<sup>23</sup> As an initial matter, the Authority provides the following, additional feedback regarding Eversource's estimated administrative costs, specifically its "Other Expenses" category. See, CGB Response to CAE-6, Program Administration Anticipated Cost Detail (rev); See also, Tr. 11/9/21, p. 61. The Storage Decision states that "[t]he CGB shall be responsible for...marketing and outreach," explicitly omitting the EDCs. Storage Decision, p. 39. As marketing and outreach are assigned to the CGB, the EDCs are not eligible for cost recovery of marketing activities associated with the Program. Notably, UI did not include any marketing expenses in its estimated administrative costs. "[T]hird-party engineering support expenses" are also included in Eversource's "Other Expenses" category. CGB Response to CAE-6, Program Administration Anticipated Cost Detail (rev); Tr. 11/9/21, p. 61. As noted above, in order to seek recovery of such expenses, Eversource must provide sufficient evidence to demonstrate prudence, including, but not limited to, clearly showing that existing internal resources were leveraged to the extent possible. Last, in order for the Authority to consider cost recovery of any "Other Expenses," detailed cost information for each subcomponent must be provided, e.g., third-party engineering support services, vendor fees, API connection fees, etc. See, Tr. 11/9/21, p. 61-62.

### a. RAM Filing Clarification

On November 17, 2021, the EDCs filed a motion requesting that the Authority clarify several points in the Storage Decision (Motion No. 28). The Authority grants Motion No. 28 and provides further clarification herein.

First, the EDCs asked the Authority to clarify whether EDC payments to the CGB are to commence upon final approval of costs in the RAM proceedings. Motion 28 pp. 3-4. Following Authority approval of the costs in the RAM proceedings, the EDCs' payments to the CGB should commence on the first month electric rates reflect the recovery of such costs from ratepayers. For example, Authority approved costs in the upcoming RAM proceedings (i.e., 22-01-03 and 22-01-04) would be reflected in rates effective May 1, 2022. Accordingly, EDC payments to the CGB would commence on that date.

Second, the EDCs asked for language clarifying the standards of documentation for program cost recovery. *Id.* Page 49 of the Storage Decision sets forth what documents the Program Administrators must submit in order to recover program launch and Year 1 administration program costs. To reiterate, the Program Administrators must submit in the applicable RAM proceedings by January 15, 2022, a line-item estimate of all costs requested to be included in rates. The standards of documentation for program launch and Year 1 administrative costs shall apply to cost recovery for all Program years. Furthermore, the CGB is responsible for submitting its documentation directly to the Authority in the RAM proceedings, allocating its costs between the EDCs as directed in the Storage Decision.

Finally, the CGB's expenses are not exempt from a prudence review since its expenses will be passed through to ratepayers. The standard for the CGB's prudence review will not deviate from the standard applied to the EDCs, and the CGB will carry the burden of proof in the prudence review of its expenses, as noted above. However, as articulated in the Storage Decision, the CGB may submit a performance-based recovery proposal in which it must demonstrate that any expenses beyond those which are prudently incurred must be in-line or below what could be reasonably expected to be incurred by a 3<sup>rd</sup> party program administrator.

### C. OUTSTANDING PROGRAM MATTERS

In addition to the Year 1 Program design documents and other key compliance discussed herein, there are several outstanding Storage Decision compliance filings that have not yet been addressed by the Authority. For any outstanding items not discussed in this Decision, the Authority will issue additional Motion rulings as necessary to ensure the successful launch of the Electric Storage Program on January 1, 2022. As stated in the Notice of Proceeding, **stakeholders will have two weeks to comment** on remaining motions for Authority review and approval of **compliance filings associated with the Storage Decision**. Accordingly, comments on compliance with Order Nos. 15 through 17 of the Storage Decision are due **no later than 4:00 pm on December 29, 2021**. The Program Administrators shall include as many of the outstanding compliance filings with both this Decision and the Storage Decision in the final Program Manual as reasonable, either in the Program Manual itself or as an appendix.

Order Number	Responsible	Description	Due Date
2021			
15	Program Administrators	Resiliency Plan template and proposed application process	12/15/2021
16	Program Administrators	Program metrics, associated calculation methodologies, and data requirements for verifying Program performance based on the established metrics	12/15/2021
17	Program Administrators	Comprehensive Data Privacy and Security Plan for the Program	12/15/2021
2022 and later			
18 <sup>24</sup>	EDCs	Comprehensive description of the EDCs' respective existing DRMS and DERMS platforms, including but not limited to a description of the procurement process and timeline, upfront and ongoing system costs, and a description of how the costs for such systems are paid for by ratepayers	1/1/2022
19	CGB	Proposed program modifications based on the results of its conversations with FTM electric storage stakeholders, DEEP, the EDCs, and wholesale market participants, including relevant BCAs specific to FTM electric storage systems <sup>25</sup>	6/1/2022
20	CGB	Proposal to better optimize the emissions reductions achievable through the Program	8/1/2022
21	Program Administrators	Proposal for Program modifications that will enable the Program to better complement or otherwise support the managed charging programs in the EV Charging Program	8/1/2022
22	Program Administrators	Annual report summarizing the Program results to date, including an updated BCA, and recommendations for any Program modifications	8/1/2022
23	Program Administrators	Provide the OCC, DEEP, and the Authority with means to access the performance data (e.g., battery output, ratio of dispatch responses to calls, etc.) of participating energy storage systems on a downloadable basis	1/1/2023
24	Program Administrators	Publish a website containing all relevant Program data	1/1/2023
25	Program Administrators	Submit the EM&V Consultant's full report on the established Program metrics	6/15/2024

#### D. PROGRAM REVIEW

Pursuant to the Storage Decision, during the first two years of each Program cycle (e.g., 2022 and 2023) the Authority will conduct an Annual Review beginning on or around August 1 of each year to review key metrics and make strategic adjustments to ensure: (1) continued alignment with the Program Objectives; and (2) that the Program is on track

<sup>24</sup> The Authority clarifies that the EDCs' compliance with Order No. 18 of the Storage Decision shall be filed as compliance and does not need to be submitted as a motion. The costs associated with the systems identified in such compliance will be reviewed in the appropriate rate proceeding.

<sup>25</sup> The CGB's filing will also address the tariff applicable to FTM systems, pursuant to the ruling to Motion Nos. 19 and 20 dated December 8, 2021.

to meet its deployment targets. Storage Decision, p. 43. During the last year of each Program cycle (e.g., 2024), the Authority will conduct a full Program Review, including an evaluation of the existing Program design. *Id.* As several program design elements will not be implemented until after Program launch, the 2022 Annual Review will be more substantive in nature. Specifically, the Authority will address the following outstanding issues in 2022:

- (1) Proposal to increase the emission reduction benefits associated with the Program;
- (2) FTM electric storage system incentives and tariffs; and
- (3) Program modifications to support the managed charging programs in the EV Charging Program.

## **VI. CONCLUSION AND ORDERS**

### **A. CONCLUSION**

The Authority approves, with modification, certain documents proposed by the Program Administrators to administer the Electric Storage Program available to all customers and customer classes within the service territories of the EDCs. Pursuant to the Storage Decision, the Program will launch on January 1, 2022. The Authority also addresses the documents submitted in compliance with Order Nos. 2 through 6, 8, 9, 10, and 13 of the Storage Decision. Accordingly, the Decision contains the Authority's ruling on Motion Nos. 8 through 16 and 18, as well as its ruling on Motion No. 28 in Docket No. 17-12-03RE03.

### **B. ORDERS**

For the following Orders, the Company shall file an electronic version through the Authority's website at [www.ct.gov/pura](http://www.ct.gov/pura). Submissions filed in compliance with the Authority's Orders must be identified by all three of the following: Docket Number, Title and Order Number. Compliance with orders shall commence and continue as indicated in each specific Order or until the Company requests and the Authority approves that the Company's compliance is no longer required after a certain date. All Orders requiring Authority review and approval shall be submitted as a motion.

1. No later than December 10, 2021, the Program Administrators shall file for Authority review and approval any proposed changes to the Program name and/or branding.
2. No later than December 20, 2021, the Program Administrators shall submit for Authority review and approval all final Electric Storage Program documents not currently under review by PURA, including the draft operational agreement.<sup>26</sup> The

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<sup>26</sup> In its motion ruling approving the Program Administrators' filing in compliance with Order No. 3 of this Decision, the Authority will provide a date by which the Program Administrators shall file all final Program documents, including the Program Manual. The Program Administrators shall include as many of the



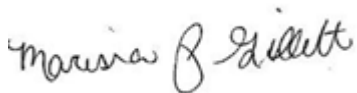
Proposed Program Guidelines shall be renamed the Program Manual. The Authority will accept stakeholder comments on this filing and the associated motion **until 4:00 pm on December 28, 2021**. Additionally, the Authority will accept comments on compliance with Order Nos. 15 through 17 of the Storage Decision **until 4:00 pm on December 29, 2021**.

3. No later than January 28, 2022, or one week before the first webinar, whichever occurs first, the Program Administrators shall file with the Authority the dates, times, and location (including web links) of any webinars to be held in the first quarter of calendar year 2022.
4. No later than January 31, 2022, the Program Administrators shall transmit an email to their relevant contacts within the electric storage industry to inform them of the final list of eligible systems, along with the approved Battery Technology Approval Form. The Program Administrators shall file the transmitted email as compliance.
5. No later than March 1, 2022, the CGB shall file a description of its contractor audit process for customers receiving the Low-Income or Underserved Community adder in Docket No. 22-08-05.
6. No later than March 1, 2022, the Program Administrators shall file as compliance a list of all approved contractors and TPOs.
7. No later than March 1, 2022, the EDCs shall file compliance describing how customers taking service under the Residential Renewable Energy Solutions buy-all tariff could participate in the Electric Storage Program.
8. No later than August 1, 2022, the Program Administrators shall file the results of its BCA modeling for storage systems that only participate in the Active Dispatch portion of the Program in Docket No. 22-08-05. The Program Administrators' filings should also include any recommendations for amending the incentive levels for such participation in Year 2 of the Program.
9. No later than August 1, 2022, and annually thereafter, the Program Administrators shall submit its compliance with Order No. 22 of the Storage Decision, incorporating the direction provided in Sections IV.B.2. and V.A.4.iii. of this Decision.
10. At the time of first issuance, the CGB shall file examples of any marketing emails sent to potential Low-Income customers and customers in Distressed Municipalities.

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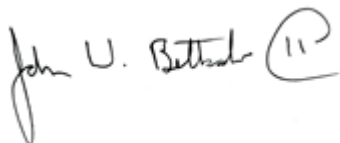
outstanding compliance filings with both this Decision and the Storage Decision in the final Program Manual as reasonable, either in the Program Manual itself or as an appendix.

This Decision is adopted by the following Commissioners:



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Marissa P. Gillett



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John W. Betkoski, III



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Michael A. Caron

CERTIFICATE OF SERVICE

The foregoing is a true and correct copy of the Decision issued by the Public Utilities Regulatory Authority, State of Connecticut, and was forwarded by Certified Mail to all parties of record in this proceeding on the date indicated.



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Jeffrey R. Gaudiosi, Esq.  
Executive Secretary  
Public Utilities Regulatory Authority

December 8, 2021

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# Program Guidelines for the Connecticut Electric Storage Program

10.15.21

CT Battery Storage Program Administrators



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## Section 2: Acronyms and Glossary

<b>Term</b>	<b>Acronym or Abbreviation</b>	<b>Definition</b>
Electric Storage System	ESS	
Public Utility Regulatory Authority	PURA; Authority	
Distributed Energy Resource Management System	DERMS	
Reservation of Funds	ROF	
Connecticut Green Bank	CGB; Green Bank	
Maximum Power Point Tracking	MPPT	
Program Administrator	PA; Administrator	
Electric Distribution Company	EDC	
Eligible Third-Party Owner	TPO; System Owner	
Eligible Contractor	Contractor	
Supplier		Eligible Contractor or TPO
Terms and Conditions	T&C	
Power Purchase Agreement	PPA	

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## Section 3: Summary

The Connecticut Electric Storage Program<sup>1</sup>, herein known as the “Program”, is a voluntary incentive program offered to the residential, commercial, and industrial customers of The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) or The United Illuminating Company (UI) who are considering on-site electric energy storage solutions. The purpose of the following sections are to outline the purpose, requirements, steps, and expectations of the key parties involved in the application and incentive process. This document will also serve as a basis for compliance with the decision as listed below.

On July 28, 2021, the Connecticut Public Utilities Regulatory Authority (Authority) issued a final decision in Docket No. 17-12-03RE03, PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage (Decision) establishing a nine-year Connecticut Electric Storage Program (Program), which shall be available to all customers and customer classes within the service territories of Eversource and UI, collectively, the electric distribution companies (EDCs).<sup>2</sup> The Decision also establishes the EDCs and the Connecticut Green Bank (CGB) as Program Administrators. The Authority’s goal in the proceeding was to develop and implement a program for electric energy storage systems (ESS) connected to the electric distribution system that would provide multiple types of benefits to the grid, including ancillary services, peak shaving, support for the deployment of other distributed energy resources, and customer, local, or community resilience.

In the Decision, PURA identified seven key objectives for the Program, including:

1. Provide positive net present value to all ratepayers.
2. Provide multiple types of benefits to the electric grid (e.g., customer, local, or community resilience, ancillary services, peak shaving, avoiding or deferring distribution system upgrades, or supporting the deployment of other distributed energy resources).
3. Foster the sustained, orderly development of a state-based electric energy storage industry.
4. Prioritize delivering increased resilience to low-and-moderate income customers, customers in environmental justice or economically distressed communities<sup>3</sup>, medical hardship customers, residents living in public housing, customers on the grid-edge who consistently experience more and/or longer than average outages during major storms, and critical facilities.
5. Lower the barriers to entry.
6. Maximize the long-term environmental benefits.
7. Maximize the benefits to ratepayers derived from the wholesale capacity market.

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<sup>1</sup> Program naming and branding still in progress.

<sup>2</sup> Connecticut Public Utilities Regulatory Authority, Final Decision, *Docket No. 17-12-03RE03: PURA Investigation Into Distribution System Planning of the Electric Distribution Companies-Electric Storage*, issued Jul. 28, 2021, available online at: [http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/38cb46347a645ee585258720004d0e3e/\\$FILE/171203RE03-072821.pdf](http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/38cb46347a645ee585258720004d0e3e/$FILE/171203RE03-072821.pdf).

<sup>3</sup> Per Conn. Gen. Stat § 22a-20a, “environmental justice communities” are defined as a municipality on the Department of Economic and Community Development list of distressed municipalities or in a defined US census block. These defined census blocks are in municipalities that are not “distressed;” however, they have census block groups with 30 percent of their population living below 200 percent of the federal poverty level. A current list of these census blocks is available at: <https://portal.ct.gov/DEEP/Environmental-Justice/Environmental-Justice-Communities>.

Residential, commercial, and industrial customers of Eversource and UI are eligible to participate in the Program, with the Authority’s end goal of deploying 580 megawatts (MW) of electric storage by 2030.

The Program consists of two key elements:

**Passive Dispatch:** a declining-block upfront incentive (administered by CGB which requires eligible ESS’s to automatically store and dispatch during passive event periods. All systems installed as part of this program will be interconnected with passive dispatch as the default system setting.

**Active Dispatch:** a performance-based incentive structure managed by the EDCs which compensates participants for the average kW dispatched during events over the summer and winter seasons.

Table 1 below is a Program summary of the dispatch parameters for the first three (3) years of the Program (2022-2024).

Table 1 Connecticut Electric Storage Program Elements

Program Element	Design Item	Summer	Winter
Passive Dispatch	Declining-Block Upfront Incentive	Varies by program step, customer type, and building type. See “Passive Dispatch and Upfront Incentives” section	
	Events per Season	All non-holiday weekdays (~60)	N/A
	Months	June, July & August	N/A
	Event Duration	5 Hours (Base output across entire dispatch window)	N/A
	Anticipated Dispatch Window	3 PM to 8 PM	N/A
	Reserve Capacity	20% Required Reserve	N/A
Active Dispatch <sup>4</sup>	Events per Season	30 to 60	1 to 5
	Months <sup>5</sup>	June through September	November through March
	Event Duration	1 - 3 hours (Targeted output within dispatch window)	1 - 3 hours (Targeted output within dispatch window)
	Anticipated Dispatch Window	9 AM to 9 PM (All Days)	9 AM to 9 PM (All Days)
	Reserve Capacity	Not required by Program; TBD by Customer	

<sup>4</sup> To the extent possible, EDCs will provide Program Participants notice of Active Dispatch Events 24 hours ahead of an event.

<sup>5</sup> EDCs may need to dispatch in off season months, on an as-needed basis.

## Section 4: Enrollment

Customers will be able to enroll in the Program via their Eligible Contractor or Third-Party Owner (TPO) (Supplier) completing a project application (Application) on the Customer's behalf through the Enrollment Platform<sup>6</sup>. The Customer's Supplier will be responsible for submitting the Customer's Application to the appropriate Program Administrator and the customer and/or Supplier will be responsible for registering the ESS into the relevant EDC's existing Demand Energy Response Management System (DERMS). Customers (or Suppliers on their behalf) may also need to submit an Application into the relevant battery storage manufacturer enrollment platform. The time period allocated to complete each enrollment milestone will differ depending on the type of the Customer (commercial or residential) and the size of the project.

### 4.1. Customer Enrollment Process

The following steps outline the expected process flow for customer enrollment into the Program, from Application to the verification of system operation and the onset of performance period.

#### **Customer Enrollment Steps and Milestones**

##### **1. Execute Customer Contract, Data Release, and Terms and Conditions**

The Customer must sign and execute a Customer Contract, Power Purchase Agreement (PPA), or Lease Agreement, noting the designation of associated parties to include TPO, Supplier, and other pertinent parties responsible for administration of the project. The Customer Contract, PPA, or Lease Agreement must comply with the requirements set forth in Sec. 5.3.1.1 (7) or Sec. 5.3.1.1 (8) where applicable.

The Customer must also agree to and sign the Customer Information Disclosure Agreement available on the Program website and the Customer Terms and Conditions included in Appendix D.

##### **2. Complete Application**

Customers seeking participation in the Program must be first deemed eligible through an Application process that will remain open through the completion of Step 3. The Supplier must register their respective Customers using Enrollment Platform to complete the Application. The Supplier will follow instructions on the Enrollment Platform to submit a complete Application.

Communications and notifications for activity throughout the process will be sent via email to the addresses on file in the Application.

To be considered complete, each Application will include, but may not be limited to, the following information submitted directly or via attached files in the Enrollment Platform:

- a. Customer, Contractor, and TPO) (if applicable), detailed contact information
- b. Service address and account number

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<sup>6</sup> Enrollment Platform selection and branding still in progress

- c. Designation of operator responsible for “last-mile” communication to the device being dispatched
- d. Designation of incentive recipient (i.e., TPO, default is Customer) and point of contact responsible for Application accuracy
- e. Signed sales or lease agreement
- f. System design narrative, design submittals and specification sheets
- g. Designation as to whether the project will claim capacity rights in the ISO-New England Forward Capacity Market (ISO-NE FCM) and/or Ancillary Services market as described in the Authority’s final decision page 20.
- h. Signed Program Terms and Conditions<sup>7</sup>

Upon receipt, the Enrollment Platform will provide the Customer and Supplier(s) with an Application number to track progress. If any associated parties are yet to be selected by the Customer, such as Supplier(s), these designations must be made prior to Construction Phase as listed below.

### **3. Program Administrator reviews project for eligibility and technical accuracy**

After Application submittal, Program Administrator staff will review the Application for accuracy and completeness. If additional information is needed, Supplier(s) will be notified via email of any deficiencies. The Applicant may be given a time frame to correct such deficiencies, as indicated in an email communication. If after this extended time the Applicant has not provided the requested information, Programs Administrator may elect to cancel the incentive application.

### **4. Program Administrator approves project application and incentive levels**

Upon all Application requirements being satisfied, the Program Administrator will electronically send a Reservation of Funds (ROF) letter describing the estimated incentive, the milestone approval process and dates, and the expiration date of the fund reservation, all including in a Customer Contract. Supplier will be required to return a signed version of the ROF and Customer Contract electronically. The funds are reserved for 180 calendar days, at which point all completion materials must be submitted through the Enrollment Platform. If an extension is required, Supplier may file a written request as detailed on the Enrollment Platform.

### **5. Execute Interconnection Security Agreement**

The Supplier must submit a completed Interconnection Security Agreement to the Program Administrator during the Construction Phase, at which point the project incentive funds will be reserved for 12 months (both public and private). Projects should be interconnected with exporting capabilities where not cost-prohibitive to the customer. Commercial and industrial customers with base load higher than the maximum dispatch may also be exempted from exporting requirements.

### **6. Construction Phase**

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<sup>7</sup> See Sec. 9

The Supplier may pursue the construction schedule that best suits the project needs, although the Program Administrators anticipate that the majority of projects will not begin construction until the Customer Contract has been executed (as described in Step 1 above). Upon final construction completion, the Supplier will notify the EDC or Program Administrator that construction is complete and the system is ready for verification via submission of project completion materials in the Enrollment Platform. Connection to any building's electrical service or utility meter can only be performed by a licensed Connecticut E-1.

## **7. Approval and Payment of Upfront Incentive**

Upon confirmation that the system is energized and operational and has received final approval from the EDC and CGB (as described in Battery Enrollment Process Step 3 below), the Upfront Incentive will be approved for payment as described in Section 7: Program Dispatch and Incentive Structure.

## **4.2. Battery Enrollment Process**

The following steps outline the expected process flow for how batteries will be enrolled into the Program, from Application to the verification of system operation and the onset of performance period.

### **Battery Enrollment Steps and Milestones**

#### **1. Contract Execution**

When the Customer Contract is executed (as described above in Customer Enrollment Process Step 4), all relevant data will be input into the EDC DERMS platform and the project will be registered.

#### **2. Commercial Operation Date**

Following system commissioning and internal checks, the Supplier will notify the EDC or Program Administrator in writing (email or online platform confirmation) of the final commercial operation date. Within 5 business days, the EDC will propose a date and time for an initial verification of system operation, as applicable.

#### **3. Verification of System Operation**

For all commercial and industrial projects, as well as residential projects over 20 kW AC of system nameplate discharge capacity, the verification of system operation step is required following construction completion and commercial operation. The EDC may inspect the system during operation, either physically in person or virtually, to verify system parameters are within the Application specification, informed by the EDC guidelines and industry approved storage inspection protocols. If the verification inspection produces results that are not accurate to the Application or design submittal, the Supplier will have 30 days to rectify and schedule an additional verification inspection, or submit proof of correction to the satisfaction of the EDC. Other exceptions or extensions to the approval process may be determined on an individual basis by request from the Supplier to the EDC.



The Program Administrators shall conduct inspections as needed for any residential projects under 20 kW AC of system nameplate discharge capacity, pursuant to the process described in Sec. 4.4.1.

### 4.3. Enrollment Deadlines and Milestones

#### **Summer Season Application Deadline**

For a customer to ensure they receive their full performance incentive for the summer season, the Application must be received by the customer’s Program Administrator by 11:59 PM on May 31 of that year. Customers can still enroll after May 31 for the summer season. However, the customers discharge performance will be set to zero (0 kW average) for any discharge events the customer missed.

#### **Winter Season Application Deadline**

For a customer to ensure they receive their full performance incentive for the winter season, a Application must be received by the customer’s Program Administrator by 11:59 PM on November 30 of that year. Customers can still enroll after November 30 for the winter season. However, a customers discharge performance will be set to zero (0 kW average) for any discharge events the customer missed.

The Program Administrators reserve the right to change these deadlines.

#### **Milestone Deadlines**

<b>Milestone</b>	<b>Deadline</b>
Complete Application	May 31 <sup>st</sup> Summer; October 31 <sup>th</sup> Winter
Execute Customer Contract	Within 6 months after Application submitted
Execute Interconnection Security Agreement	Within 6 months after Executed Customer Contract
Commercial Operation Date	Within 12 Months from Executed ISA
Verification of System Operation	Non-compliance issues must be resolved within 30 days of inspection (inspection performed closely following Commercial Operation Date)

### 4.4. Project Verification

#### 4.4.1 Project Inspections

To qualify for an incentive, Suppliers must agree to provide the Program Administrators with a Self-Inspection report (including all required photos) at project completion, along with all other project completion paperwork. The Program Administrators will review Self-Inspection report submission and follow up with the Supplier as needed. Suppliers will submit Self-Inspection reports via the Program enrollment platform in accordance with guidelines described in the current Process Guides. A copy of the Self-Inspection Checklist is posted at the Program website.

The Program Administrators reserve the right to, at their own discretion, have a representative of the Program Administrator conduct a field inspection of the completed system to verify information submitted in the self-inspection report and Application materials, as well as inspect the system with respect to: battery system communication status to assure that the battery can dispatch to meet program requirements as well as meet customer backup power needs, equipment verification, safety considerations, workmanship, and

other considerations such as local and state codes, laws and regulations (though adherence to applicable codes are primarily the purview of municipal inspections). Suppliers and customers must allow this representative to inspect the completed and interconnected ESS. Before installing an ESS, Suppliers should ensure that customers will make reasonable effort to allow the Program Administrators' inspector access. Contractor, TPO, and customer will have the right to be present for the Program Administrators' Field Inspection as safety allows and at the discretion of the inspector. The Program Administrators and inspectors will coordinate inspection following Supplier's submission of proof of project completion.

Upon the second instance of a re-inspection at one (1) or more sites, the Supplier may be required to pay the costs of follow-up inspection.

Discrepancies found between incentive applications and inspection reports will be reviewed by the Program Administrators. The Program Administrators reserve the right to adjust incentive calculations based on inspection reports or other submitted documentation and will make a final decision on incentive adjustments due to inspection failures. Incentive adjustments made as a result of inspection reports may only decrease the total incentive level; never increase. Supplier is responsible for the original incentive calculation and will therefore be held responsible for any reduction in incentive amount as a result of the inspection report or other submitted documentation. Reduction in incentive as a result of Supplier mistake or negligence shall not be passed on to customers.

The Program Administrator will work to ensure that inspections are performed in a reasonable timeframe and do not impose an excessive burden or inconvenience on customers, Contractors, or TPOs in good standing. The Program Administrator may modify its inspection policy to better accommodate Suppliers. Adjustments to the policy and/or processes will be detailed at the Program website.

#### 4.5. Project Completion Policy

To ensure good stewardship of Program incentive funds, the Program Administrators will enforce a Project Completion policy. Approval of new incentive applications may be suspended and/or projects considered cancelled by the Program Administrators for projects that are non-compliant based on any of the eligibility requirements outlined above or any of the following rules:

1. Project Expiration
2. Inspection Failures and Delays
3. Completion Deficiencies

##### 4.5.1 Project Expiration

Incentive reservations may be cancelled for projects if their incentive approvals expire. Projects will be considered expired when a Supplier has projects that have passed the timeframe (as specified in Reservation of Funds letter) listed in incentive reservation letters or on the Program website, where applicable, whichever is later. Projects are Expired if all completion paperwork has not been submitted. Expired Projects may have their project status changed to "Cancelled". Supplier may resubmit for approval at then-current incentive level if project has not yet been installed. Incentive payments that were already received for cancelled projects must be returned to the Program Administrator within 30 days of cancellation.

The Program Administrator reserves the right to modify its schedule, deadlines, and timelines associated with Project Expiration and will post notice via the Enrollment Platform in the event of any changes.

#### 4.5.2 Inspection Failures and Delays

Incentive reservations will be cancelled if projects fail to meet inspection deadlines:

1. Failed Inspection of 30+ days - Any projects in “Failed Inspection” status for 30 days or more.
2. Delayed Self-Inspection – Consistent failure to submit Self-Inspection documentation.
3. Fail to report energy data to the Program Administrator’s Performance Data Monitoring platform

#### 4.5.3 Completion Deficiencies

Projects will be rejected if responsible party fails to submit complete project completion information and paperwork, including but not limited to: inspection documentation, updated system specifications, utility documents, packing slips, certificates, change orders, signatures, audit trails and document revisions.

#### 4.6. Unsubscribing from the Program

Customers who enroll in the Program will remain enrolled year over year until they provide written notice to the Program Administrator that they want to be removed from the Program. Once a season (summer or winter) starts, the customer must stay enrolled for the entire season to receive the performance incentive. A customer cannot un-enroll midway through a season and receive the performance incentive for fewer events than all the other Program participants. Any system that unsubscribes from the Program must provide proof of decommissioning completed by the operations and maintenance provider of the system.

Exiting from the program before 10 years of system operation, or non-performance in passive events during this period, will result in non-compliance with program requirements and the customer will be required to return a prorated portion of the un-earned upfront incentive as determined by CGB.

#### 4.7. Transfer of Enrollment

The Program will allow customers to transfer Program enrollment to other customers. If a customer moves out of their residence/facility, and the new occupant would like to participate in the Program, they must apply and participate at the incentive rate offered at that time. For transfer scenarios, the new customer will not receive an additional upfront incentive. In the event of re-enrollment, the ESS capacity will not count toward the 580 MW deployment target.

If a customer moves out of their residence/facility and the new occupant does not participate in the Program, then the original customer who entered into the Program Contract is responsible for returning a prorated portion of the upfront incentive upon property transfer.

#### 4.8. Electronic Signatures

Suppliers may use and allow their retail customers to use electronic signatures in lieu of wet signatures for contracts and other documents in the Program and create such contracts and other documents in electronic form. Electronic signatures must (a) use logically attached or associated with the electronic contract or other document being created and is verifiable, (b) include a date and time stamp of the electronic signature and an electronic audit trail of the electronic signature and the electronic contract or other document that

is created, and (c) be sure the electronic contract or other document is created and retained in a secure electronic environment that preserves the integrity of the electronic contract and all the information contained therein and can be made available to the Program Administrator upon its request.

Examples of electronic signature technology systems that are acceptable to the Program include DocuSign, HelloSign and Adobe Sign. Only commercially available third-party platforms are accepted. The Program Administrator will not accept electronic signatures that have been digitally altered, copied, or placed using computer software that does not provide a verifiable electronic audit trail. Prior to the use of any electronic signature technology for contracts and other documents in the Program, the Supplier must obtain the prior approval of the Program Administrator.

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## Section 5: Eligibility

### 5.1. Customer and Site Eligibility

To be eligible for the Program, the customer must have a UI or Eversource electric service account located in Connecticut and the ESS must be located at the electric service account location.<sup>8</sup> Additionally, the residential, commercial, or industrial building must be connected to the grid by agreement with the EDCs and the ESS must be new to the customer. Systems installed prior to January 1, 2022 are not eligible for the Program. Additional capacity added to existing ESS's may be eligible for the Program, subject to the discretion of the EDC's and an analysis of the proposed system to include age and functionality verification of the existing ESS components.

#### 5.1.1 Ownership

ESS's may be owned by: (1) the customer or (2) a third-party operator (TPO) with the customer's permission as indicated in the Application. All Program rules must be met regardless of the ESS's owner. In the instance that there is a change in TPO or Contractor, the Customer must notify the Program Administrator in writing to request an evaluation of the new agreement and/or new TPO.

For customers purchasing an ESS from a qualified Contractor, the customer will retain title to the equipment purchased. The Contractor is responsible for ensuring all equipment is installed in accordance with manufacturer specifications and warranty provisions when system is placed in service. The Contractor will be held responsible for any actions that void equipment warranties due to workmanship.

If the ESS is owned by a TPO, the equipment title shall remain with the TPO.

#### 5.1.2 Energy Efficiency Audits

For residential customers at the time of Application, the Customer of Record must have either completed a Home Energy Solutions (HES), Home Energy Solutions Income-Eligible (HES-IE), or an equivalent energy assessment<sup>9</sup> after 2011 or must have scheduled such an assessment. Information on scheduling HES and HES-IE assessments is available at:

- Home Energy Solutions-Income Eligible: <https://energizect.com/your-home/solutions-list/save-energy-and-money-all-year-long>
- Home Energy Solutions: <https://energizect.com/your-home/solutions-list/home-energy-solutions-core-services>

In certain limited circumstances, one-to-four family homes may not be eligible for HES or HES-IE assessments. Exemptions to the HES audit requirement are permitted in only the following instances:

1. New Construction: at minimum, home 1) was built after 2011, 2) was Energy Star certified in 2011 or later or 3) has a Home Energy Rating System (HERS) rating of 85 or lower. Contractor or

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<sup>8</sup> New construction or new service customers may submit proof that a new service has been requested at application. Incentive payments will not be issued until the Program Administrators have confirmed that electric service has been established with Eversource or UI.

<sup>9</sup> Program Administrator will accept energy efficiency audits conducted in-person by a technician certified by the Building Performance Institute (BPI), HERS, or Home Performance with Energy Star. A copy of the audit report must be provided to the Program Administrator. The Program Administrator must approve "HES equivalent" energy audit types.

Homeowner must submit to the Program Administrator a signed letter from the homebuilder or architect listing the home's (actual or expected) construction date, compliance with current Connecticut building codes and/or Energy Star or HERS rating certificate where applicable, estimated annual load, and energy efficiency measures implemented, if applicable.

2. Gut Rehabilitation: if home has been or will be completely stripped to its frame and rebuilt, then at minimum, Contractor or Homeowner may follow "New Construction" exception guidelines mentioned above.
3. Health and Safety Concern: Technician cannot perform energy efficiency audit due to health and/or safety concerns (i.e., mold, asbestos, vermiculite, etc.). In this case, a letter should be provided specifying the issues that prevent the audit or certain measures from being performed.

The Program Administrators recommend that commercial and industrial customers participating in the Program have an energy efficiency audit performed by a qualified individual prior to system installation to ensure maximum resiliency benefits.

## 5.2. Storage System Technical Eligibility

The EDCs have developed a list of eligible electric storage technologies (see Appendix A) and currently, only electro-chemical (or battery) ESS's are eligible. As other electric storage technologies become market available, the EDCs will consider their inclusion in the Program. Examples of these technologies may include thermal storage, mechanical storage, pumped hydropower, electric vehicle battery to grid and other emerging technologies such as hydrogen energy storage. Throughout the Program's duration, the EDCs will evaluate the inclusion of these technologies on a case-by-case basis. The EDCs' have detailed their proposed technical and program requirements below.

### 5.2.1 Technical Requirements

The Program Administrators have developed the following technical requirements for eligible electric storage technologies for which Contractors will need to comply:

- Commercially available, carrying at least a 10-year manufacturer warranty with customer service and technical support provided by the manufacturer.
- The equipment supplier should maintain the rated Power Capacity for a 10-year service life of the project with an availability standard (>90% availability is possible).
- The electric storage technologies shall be capable of and must comply with all scheduling commands to provide Power Capacity, Energy Capacity, and Annual Cycle requirements.
- The rated Energy Capacity shall be on an annual schedule over a 10-year period, or based on total energy throughput, to accomplish use-case objectives.
- Minimum 85% round-trip efficiency.
- Permanently installed, grid connected, and behind-the-meter.
- Adhere to structural, building, and local codes, laws and regulations.
- ESS design approved by the EDC as part of the interconnection process. For residential customers, ESS must be capable of exporting power to the distribution grid unless granted exception from the Program Administrators.

- ESS should be capable of islanding from the grid during outage events and the ESS wiring diagram should indicate how this will be accomplished.
- The equipment provider (Contractor or TPO) should offer service with capacities that include:
  - Customer enrollment into a DERMS compatible communication interface.
  - Charge and dispatch control of individual systems.
  - Ability to send dispatch commands in real time and receive inverter and receive critical operating data.

There are numerous codes and standards that apply across the ESS technological landscape. Some of these standards apply across all the technologies such as electricity metering, communication standards, building, and electric codes. Individual technologies, such as different battery chemistries or mechanical energy storage, may have specific standards that apply while emerging technologies are pushing these standards to be constantly evolving. Systems installed under this program should adhere to all applicable standards including, but not limited to, the following list:

- American National Standards Institute (ANSI 62.41 – Surge suppression, ANSI C12.1 – AC Electric Metering)
- Institute of Electrical and Electronics Engineers (IEEE 519 - Harmonics, IEEE1547 – Inverters, Controls, etc.)
- Underwriters Laboratories (UL1741SA – Smart Inverters, UL 62109 – Inverter safety, UL 1642 – Standard for Lithium Batteries, UL1973 – Stationary Batteries, UL9540a – Thermal Runaway and Flame Propagation)
- National Fire Protection Association (NFPA855 - Standard for the Installation of Stationary Energy Storage Systems), latest version
- National Electric Code, latest version
- Connecticut Building Code, latest version
- Local Building and Safety Codes, latest version
- Federal Communications Commission (FCC Part 15A)
- Cyber Security Framework (NIST 800-171, ISO 27001)

Installations must adhere to the applicable codes and standards assures safe and successful design, fabrication, procurement, and installation of a fully functional ESS that meets or exceeds all technical requirements, including protective and reverse-power relaying, and connection to the ESS step-up transformer secondary connections and the EDC’s Supervisory Control and Data Acquisition (SCADA) interface. All communications equipment/software, within the ESS, necessary for integration of the existing SCADA network are also driven by these standards and the preference of the EDC.

### 5.2.2 Technology Updates

During annual or program review periods, the EDCs will provide an updated list of eligible electric storage technologies to the Authority. The list will include all relevant program documentation on CGB, EnergizeCT, and the EDCs’ respective websites. If a Customer, Contractor, or TPO proposes to participate in the Program using technologies not already approved, the Contractor or TPO must submit a Program application in parallel with the submission of a Battery Technology Approval Form. The EDCs will evaluate all applications

and the technology will be accepted or rejected at the EDC's discretion based on its conformance to the technical and program requirements defined above.

### 5.3. Third Party Operator and Contractor Requirements

Third Party Operators (TPOs) are expected to interpret system-wide DERMS dispatch instructions to control an individual storage system operation. Each ESS enrolled in the Program is required to select a certified TPO responsible for implementing the "last-mile" storage system controls. Contractor requirements for eligibility are also listed, providing detail on the expectation for installation and maintenance contractors.

Prospective Eligible Contractors and TPOs that are Eligible Contractors or Eligible System Owners in the Residential Solar Investment Program (RSIP) as of October 1, 2021 may submit an abbreviated Application, as further detailed on the Program web site, and as long as the application is submitted in 2022.

#### 5.3.1 Eligible Contractor & Third-Party System Owner Eligibility

Eligible Contractors will design, sell, install, and/or service ESS's to customers in Eversource and UI territories. To qualify as an Eligible Contractor, companies or individuals applying to the Program must be qualified by experience and/or specific training in ESS design and electrical services. Additionally, Eligible Contractors must be properly insured and meet Connecticut's occupational and professional licensing requirements, such as Connecticut Master Electrician (E-1) license and/or Connecticut Home Improvement Contractor (HIC) registration where necessary.

##### 5.3.1.1. Required Documentation for Eligible Contractors

This section is only applicable to Contractors intending to sell and/or install an ESS for residential and/or commercial and industrial (C&I) customers or install for a TPO.

To apply to become an Eligible Contractor in the Program, applicants must provide the following documentation electronically or through the Program Administrator's online Application when available:

1. **Complete Application** – submitted electronically or online at Program website.
2. **Technical Capabilities** – Provide a summary of the Applicant company's experience and training with electric storage systems and related technologies; and Applicant's experience with CGB and EDC programs.
3. **Bank Reference Letter** – Provide verifiable evidence of financial solvency and health. Eligible Contractors should demonstrate their business is in good financial standing, has sufficient financial resources, and is able to meet the cash flow requirements of managing multiple projects in the Program. Please submit a bank letter of reference/credit addressed to CGB on the bank's letterhead, including the following details:
  - a. Confirmation of good standing
  - b. Minimum balance carried
  - c. Length of time the applicant has been a customer of the bank
  - d. Signature of appropriate bank officer



If the financial capacity information is confidential, it must be labeled “CONFIDENTIAL” in the title of the document and be clearly marked “CONFIDENTIAL”.

4. **E-1 and/or HIC License(s)** – Provide a copy of the E-1 license(s) and/or HIC registration(s) under which the applicant is registered. Please follow the guidance in Table 2 below to determine which license(s) must be held depending on type of sales.

Note: all salespersons for HIC companies must be registered as Home Improvement Salespersons (HIS) with each company for which that salesperson is conducting sales. The Program does not require submission of HIS licenses for individual salespersons but may request them at any time. An owner or principal of an HIC company does not need to have an HIS to conduct sales.

Table 2 Minimum Required Licensing for Eligible Contractors

	Residential ESS		Commercial and Industrial ESS
Company License	E-1	HIC	--
Salesperson License	--	HIS	--
Grid Interconnection Electrician’s License (Subcontractor or Employee)	E-1		E-1

**Solicitors’ Permit(s)** – “Vendor”, “Peddler” or “Solicitor” permits may be required by certain Connecticut municipalities for canvassing and door-to-door sales or lead generation. Check with the municipalities in which you are doing business. The Program does not require submission of these permits as part of the Application but may request them at any time.

5. **Additional Licenses, Education and Training** – Provide copies of any additional licenses, education and training obtained by permanent employees or subcontractors who will be directly involved in the Program.
6. **Subcontracting Agreement(s)** – If the applicant company will use subcontractors to install ESS under the Program, submit a copy of the agreement for each subcontractor. The agreement should be on the applicant company’s letterhead and include the following details:
  - a. Subcontractor’s primary responsibilities
  - b. Contractor’s primary responsibilities
  - c. Term of agreement
  - d. Any other relevant terms
  - e. Signatures of all related parties

If any changes to subcontracting agreements are made, Eligible Contractor must notify the Program Administrator within five (5) business days.

**7. Residential ESS Sales Contract and Terms (if applicable)** – Provide a complete copy of your standard contract or sales agreement template exactly as provided to a residential customer for completing the sale of an ESS. Use of the contract template must be pre-approved by the Program Administrator. Contractors and TPOs will not receive incentive approvals for projects using an unapproved contract template. If this contract changes, an updated contract must be promptly provided to the Program Administrator.

All sales contracts between customers and Contractors participating in the Program and requesting an Upfront Incentive must reference the incentive as an upfront cost reduction to the customer. The upfront and performance-based incentives must always be referred to as “estimated”.

Each sales contract must be signed by the Eligible Contractor and the customer. All sales agreements will include, but not be limited to<sup>10</sup>:

- a. Company license or registration (E-1 and/or HIC)
- b. Home Improvement Salesperson (HIS) registration number (if company is an HIC)
- c. Description of ESS location, size, specifications (e.g., make and model), and components
- d. Nameplate power (kW) and energy (kWh) output
- e. Data monitoring and collection responsibilities
- f. Warranty provisions
- g. Total ESS system cost, estimated upfront incentive amount, and net customer cost
- h. Schedule of estimated Performance Based Incentives (if applicable)
- i. Payment schedule
- j. Notice of cancellation (in duplicate)
- k. Current Program Terms and Conditions (See Sec. # and website)
- l. Or any additional data upon request by the Program Administrators

**8. Commercial and Industrial ESS Sales Contract and Terms (if applicable)** – Provide a complete copy of your standard contract or sales agreement template exactly as provided to a commercial or industrial customer for completing the sale of an ESS.

All sales contracts between customers and Contractors participating in the Program and requesting an Upfront Incentive must reference the incentive as an upfront cost reduction to the customer. The incentive must always be referred to as “estimated”.

Each sales contract must be signed by the Eligible Contractor and the customer. All agreements will include:

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<sup>10</sup> See program website for any additional data requirements.

- a. Description of ESS system location, size, specifications, and components
- b. Nameplate power (kW) and energy (kWh) output
- c. Data monitoring and collection responsibilities
- d. Warranty provisions
- e. Total ESS system cost, estimated upfront incentive amount, and net customer cost
- f. Schedule of estimated Performance Based Incentives (if applicable)
- g. Payment schedule
- h. Current Program Terms and Conditions (See Sec. # and website)
- i. Or any additional data upon request by the Program Administrators

**9. Workmanship Warranty** – Provide a copy of Eligible Contractor’s workmanship warranty. Contractors participating in the Program must provide a ten (10) year or longer workmanship warranty. The warranty must cover full costs of labor for repair or replacement of any defective system components or components that failed due to improper or insufficient design or installation.

**10. General Liability Insurance** – All Eligible Contractors and subcontractors must carry at least one million dollars in general liability insurance to participate in the Program. Additionally, all Eligible Contractors and subcontracts must carry worker’s compensation, and auto insurance.

#### 5.3.1.2. Required Documentation for TPOs

This section is only applicable to TPOs which intend to own and operate ESS with lease or PPA to customers in the Program. Companies may apply as both an Eligible Contractor and TPO if they intend to sell, install, own, and operate ESS to customers.

TPOs will own and operate ESS in agreement with customers in Eversource and UI territories. To qualify as a TPO, companies applying to the Program must be financially solvent and able to own and operate a fleet of ESS and be properly insured and meet Connecticut’s occupational and professional licensing requirements, such as Connecticut E-1 and/or HIC licenses where necessary.

TPOs are expected to interpret system-wide DERMS dispatch instructions to control an individual storage system operation. Each ESS enrolled in the Program is required to select a certified TPO responsible for implementing the “last-mile” storage system controls.

All TPOs must provide the following documentation:

- 1. Complete Application** – submitted electronically or online at Program website.
- 2. Technical Capabilities** – Provide a summary of the Applicant company’s experience and training with battery energy storage systems and related technologies; and Applicant’s experience with CGB and EDC programs.
- 3. Bank Reference Letter** – Provide verifiable evidence of financial solvency and health. TPOs should demonstrate their business is in good financial standing, has sufficient financial resources, and is

able to meet the cash flow requirements of managing multiple projects in the Program. Please submit a bank letter of reference/credit addressed to CGB on the bank's letterhead, including the following details:

- a. Confirmation of good standing
- b. Minimum balance carried
- c. Length of time the applicant has been a customer of the bank
- d. Signature of appropriate bank officer

If the financial capacity information is confidential, it must be labeled "CONFIDENTIAL" in the title of the document and be clearly marked "CONFIDENTIAL".

4. **Agreement(s) with Eligible Contractor(s)** – TPOs are required to use Eligible Contractors to install ESS under the Program or become an Eligible Contractor. Submit a copy of each agreement, if applicable, which should be on the TPO's letterhead, and include the following details:

- a. Eligible Contractor's primary responsibilities
- b. Eligible TPO's primary responsibilities
- c. Term of agreement
- d. Any other relevant terms
- e. Signatures of all parties

If the TPO changes, cancels, or adds agreements with Eligible Contractors, the Program Administrator must be notified in writing within five (5) business days of the change. The TPO must also submit an updated agreement, and any other applicable documents. The Program Administrator reserves the right to request additional information regarding agreements with Eligible Contractors. TPOs may also apply as Eligible Contractors to coordinate or subcontract their own installations.

5. **Residential Lease / PPA Contract and Terms (If applicable)** – Provide a copy of the TPO's standard contract or sales agreement template for residential ESS Leases or PPAs.
6. **Commercial and Industrial Lease / PPA Contract and Terms (If applicable)** – Provide a copy of the TPO's standard contract or sales agreement template for commercial and industrial ESS Leases or PPAs.
7. **General Liability Insurance** - All TPOs must carry at least one (1) million dollars in general liability insurance to participate in the Program. Additionally, all Eligible Contractors and subcontracts must carry worker's compensation, and auto insurance.

### 5.3.2 Eligible Contractor and TPO Application Process

The Application process is as follows:

1. Prospective Supplier will submit a complete Application to the Program Administrator at the Program website. The Program Administrator shall determine what constitutes a complete Application based on the requirements set forth in this document.
2. Each Application will be evaluated for completeness and consistency with the requirements outlined in this document within four (4) weeks. The Program Administrator will review the Application and may request additional documentation or information, if needed. Incomplete Applications may take substantially longer to process and may be rejected. Rejected Applicants may resubmit a complete Application at any time.
3. When a complete Application has been submitted, Program Administrator will review the Application. Applications can be rejected at the sole discretion of the Program Administrator. Reasons for rejection include but are not limited to:
  - a. Principal(s), executive(s) or staff (including but not limited to: managers, directors, executive staff, subcontractors or salespersons) of Applicant company have been associated with misconduct within Connecticut Green Bank or EDC programs, or have been associated with misconduct within other state or utility programs.
  - b. Principal(s), executive(s) or staff (including but not limited to: managers, directors, executive staff, subcontractors or salespersons) of Applicant company have been associated with illegal activity—criminal or misdemeanor—or unethical behavior that may cast the Program in negative light or call into question the integrity or workmanship or salesmanship of the Supplier.
  - c. Complaints or negative references from customers, current or past employees or other agencies or organizations.
  - d. Other reasons the Supplier may not be capable of successfully participating in the Program or meeting the Program’s consumer protection standards, at the Program Administrators’ sole discretion.
4. A letter notifying the Applicant of the Program Administrator’s approval (Approval Letter) or denial (Denial Letter) of the Application will be sent electronically. If approved as a Provisional Eligible Contractor, the letter will stipulate the provisions. If denied, Applicant may reapply (correcting for deficiencies noted in Denial Letter)
5. If approved, Supplier may request access to Enrollment Platform. Training is available upon request.
6. If approved, Supplier may begin submitting incentive reservation requests pursuant to their status (Eligible or Provisional), (Residential and/or C&I) and sales type (PPA, Lease, Purchase).

### 5.3.3 Supplier Responsibilities and Conduct

Suppliers’ Primary Responsibilities are as follows:

1. Provide responsible, accurate and transparent sales and marketing information to customers

2. Uphold a professional degree of workmanship and work collaboratively with the Program Administrator in the best interests of customers
3. Follow all rules of the Program including, but not limited to those outlined in this document and in training guides and notices.
4. Submit complete and accurate incentive applications on behalf of customers via the Program workflow platforms.
5. Comply with current Program processes for submission of incentive applications, inspection reports and project completion documents, as outlined in separate Process Guides provided by the Program Administrator at the Program website.
6. Obtain all appropriate local and state permits and approvals to facilitate the installation of the ESS.
7. Maintain all required insurance, licenses, registrations, and certifications as required by this Program and by applicable local and state law.
8. Comply with all national, state, and local codes and standards, rules and regulations including but not limited to those related to home improvement contracting, electrical work and construction.
9. Coordinate installation of grid-tied ESS through direct employees or subcontractors.
10. Complete interconnection applications for UI and Eversource customers and obtain interconnection approval before commissioning.
11. Refrain from installation of ESS systems prior to Program Administrator approval when requesting an upfront or performance-based incentive.
12. Collaborate with the Program Administrator's third-party inspectors, as needed.
13. Complete system installation (if applicable) and pass all required inspections within a reasonable timeframe.
14. Honor a required minimum ten (10) year workmanship warranty.
15. Respond to ESS outages and other ESS performance and monitoring issues within a reasonable timeframe and in accordance with warranty and contract terms.
16. Configure and maintain access to an Approved Performance Data Provider for each project receiving a Program incentive.
17. Understand the public policy objectives of PA 21-53 and Docket No. 17-12-03RE03

TPOs are required to work with Eligible Contractors to fulfill the above responsibilities. Suppliers will be held directly accountable for work performed by their staff, subcontractors or other representatives.

#### 5.3.4 Supplier Non-Performance, Misconduct, Improper and Illegal Behavior

The Program Administrator can, at its sole discretion, impose a probation, suspension or termination of a Supplier's eligibility to participate in the Program, and/or may put on hold, suspend, or terminate incentive

payments at any time if Program requirements are not met, or for misconduct, improper, or illegal behavior in connection with the Program (alleged or convicted), including but not limited to the following:

- 1. Complaints regarding sales, workmanship and service, including, but not limited to:**
  - a. Misleading or high-pressure sales tactics**
  - b. Providing false, deceptive, or inaccurate information**
  - c. Poor customer service**
  - d. Poor, improper, or unsafe installation quality**
  - e. Billing for equipment not installed, services not rendered or charges that should not be borne by a customer based on Program rules, agreements, or similar circumstances**
- 2. Failure to ensure that all applicable employees and/or subcontractors are properly licensed according to Connecticut State law and adhere to the requirements of the Program.**
- 3. Failure to comply with current State and local laws and ordinances pertinent to home improvement contracting, building, and electrical work, including but not limited to:**
  - a. Obtaining proper permits for lead generation, sales, and installations**
  - b. Following Occupational Safety and Health Administration (OSHA) regulations**
  - c. Following National Electric Code (NEC), Connecticut State Building Code(s), municipal building code(s) and ordinance(s).**
- 4. Improper incentive activity, including, but not limited to:**
  - a. Failure to return cancelled incentive funds to the Program Administrator within a thirty (30) day period**
  - b. Failure to return overpaid or otherwise owed incentive funds to the Program Administrator within a thirty (30) day period. (For example, an incentive could be overpaid due to an incentive reduction based on inspection findings occurring after incentive payment, or premature un-enrollment from dispatch programs).**
  - c. Failure to pass 100% of upfront incentive as upfront cost reduction to the customer**
- 5. Misrepresentation of ESS capabilities and benefits in sales or marketing materials to obtain competitive advantage, including, but not limited to:**
  - a. Presentation of inaccurate, deceptive, incomplete, or misleading power and energy estimates, including backup power**
  - b. Presentation of inaccurate, deceptive, incomplete, or misleading economic and environmental benefits**
  - c. Actions against a customer's best interests (including, but not limited to design and/or sale of an ESS that is not ideal or suited for the customer's property, energy, or economic needs)**

- d. Misrepresentation of incentives and credits (i.e., Program incentives, federal ITC, tax liability, etc.)
  - e. Presentation of inaccurate or misleading information about utility electricity rates including assumptions regarding rate escalation and Time of Use (TOU) rates and schedules
  - f. Presentation of inaccurate or misleading information regarding incentives, project payback, return on investment or other measures of customer project economics
6. Consistent inspection failures, including, but not limited to:
    - a. Municipal inspections
    - b. Utility inspections or witness tests
    - c. Program field inspections
  7. Failure to submit or respond to requests for information, including but not limited to:
    - a. Program documentation or information
    - b. Project documentation or information
    - c. Certificate of insurance
    - d. Certifications and licensing applicable to Program guidelines
    - e. Permit or interconnection documentation
  8. Failure to meet Responsibilities described in this document
  9. Submission of fraudulent or falsified documents or unauthorized signatures to the Program Administrator or to other State, municipal or utility agencies related to the installation of the ESS, including, but not limited to the manipulation of a signed document or electronic signature.
  10. Commission of any illegal actions while participating in the Program, or if principal(s), executive(s), manager(s), salesperson(s) or other key staff (including subcontractors) are suspected or convicted of involvement in criminal or misdemeanor activity that calls into question the integrity or workmanship or salesmanship of the Supplier, or any other actions or behaviors that cast or potentially could cast the Program in a negative light or are deemed unethical or improper by the Program Administrator.
  11. Consistent failure to follow Program procedures.

Suppliers may be given reasonable opportunity to correct problems identified by the Program Administrator, however, the Program Administrator reserves the right to immediately place on probation, suspend or terminate the Contractor or TPO from the Program for any violation or alleged violation of Program rules at the Program Administrator's sole discretion. Suspended Contractors or TPOs may reapply to the Program after their suspension period has ended. Suspended Contractors or TPOs will submit a new Application, explain how prior violations were remedied if applicable, and include a plan for preventing future issues.



### 5.3.5 Disciplinary Action and Appeal

Upon the Program Administrator becoming aware of a violation, act or omission, the Program Administrator may take one or more of the following actions:

1. Contact principal(s) of Supplier with written description of alleged Program violation(s) and request a written response to the allegations from Contractor or TPO.
2. Immediately suspend Supplier from the Program and request a written response to the allegations from Contractor or TPO. Suspension may remain in effect as an investigation is conducted.
3. Forward all documentation relevant to Program violation allegations to the Connecticut Department of Consumer Protection (DCP) and/or Connecticut Attorney General's office and/or PURA's Office of Education, Outreach & Enforcement (EOE) and/or other relevant local, state or national agencies, officials, offices or organizations.

The Program Administrator will review Supplier response and request additional information as needed.

The Program Administrator will respond in writing with its findings and with any disciplinary action. Such disciplinary action may include, but not be limited to:

1. Probation (including but not limited to a limitation of incentive approvals)
2. Suspension from the Program
3. Termination from the Program indefinitely

If Supplier disagrees with the decision made by the Program Administrator, the Supplier may appeal the decision within thirty (30) days of issuance to a review committee consisting of the officers of the CGB and representatives of Eversource and UI. The Supplier shall have the right to present their appeal within forty-five (45) days from requesting such appeal. The decision of this review committee shall be the final determination on the matter.

The Program Administrator may modify or expedite this process as the situation necessitates or as agreed to by the Supplier and the Program Administrator. All involved parties are expected to work expeditiously in finding resolution, however, timelines shall not be guaranteed due to the unique nature of each situation.

### 5.3.6 Important Implementation Notices for Project Completion Policy

Suppliers with approval suspension will still be able to submit projects to the Program enrollment platform. However, projects submitted during an approval suspension period will be considered for approval at the incentive level in effect at the time the suspension is lifted (i.e., Suppliers under suspension will not be able to "reserve" prior incentive levels).

These rules are applicable throughout the entire duration of the Program, and the Program Administrators may implement suspensions at any point in time based on non-compliance with these rules.

Suppliers are ultimately responsible for project management including tracking the status of their projects with respect to this policy.

The Program Administrators reserve the right to adjust these rules and will provide notice of changes. The Program Administrators reserve the right to make the final determination on a Supplier's standing with respect to these rules, including decisions as to whether Supplier has achieved compliance and whether suspension may be lifted. The Program Administrators are not obligated to provide exceptions to this policy. The Program Administrators will consider a Supplier's inability to comply with this Project Completion Policy a violation of Program rules.

### 5.3.7 List of Eligible TPOs

The Program Administrators will maintain a list of Eligible TPOs. This list will be available on the Program website.

### 5.3.8 List of Eligible Contractors

The Program Administrators will maintain a list of Eligible Contractors. This list will be available on the Program website.

## Section 6: Operational Control

Eligible energy storage systems in the Program must be connected to and controlled by the relevant EDC's DERMS. The EDC's DERMS will send dispatch signals for both the passive and active programs. Dispatch events will include passive and active events as described in subsequent sections. The EDCs will require each system to include the following the minimum control and monitoring aspects, at minimum:

- 1. Telemetry.** Near real-time telemetry requirements will include a minimum granular location, charge, discharge, state of charge, and schedule of events. This telemetry should meet the EDC's latency and interval requirements. In addition, the EDC's DERMS platform should receive this telemetry from every discrete ESS and not at a fleet level. Additional detail is below in Section 6.1.
- 2. Dispatching.** The EDC will initiate the dispatch of the battery energy storage system through their DERMS platform, accounting for program dispatch and any ISO-NE override instructions, and the EDC can schedule the dispatch in advance or in real-time.<sup>11</sup> Events packages may include start/stop, charge/discharge, and level of charge/discharge. The TPO will be responsible for "last-mile" operational instructions to the Customer System.
- 3. Override.** If required to maintain the safety and reliability of the grid, EDCs may also override dispatch events scheduled by the ISO-NE for battery energy storage systems participating in their programs and/or operations.

The communication to the ESS may be a direct connection to the EDC's DERMS platform. However, other layered communications constructs are acceptable if the system meets the above minimum operational control requirements. This flexibility would allow the Supplier to control the "last-mile" communication to the ESS via a third-party system, if that system provided upwards telemetry, dispatching, and override capabilities to the EDC.

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<sup>11</sup> In most cases, the Companies will schedule a dispatch in advance with a day-ahead notification; however, the Companies also plan to conduct real-time dispatches.

ESS operation allows support of the grid with high-speed operations driven by the technology of the system components. While synced to the grid, the lithium-ion ESS has proven to respond with full load capability from remote telemetry in the 1-2 second time range. From an offline state, the ESS can sync to the grid and provide full power in less than 30 seconds in most circumstances. The steps required to go from offline to an online state has a relatively simple control sequence and using the Power Conditionings System (PCS) or inverter/transformer to sync to the electrical characteristics of the grid. Figure 1 illustrates a high-level depiction of the hardware required for both the EDC and ISO-NE to manage control of the ESS through the DERMS platform.

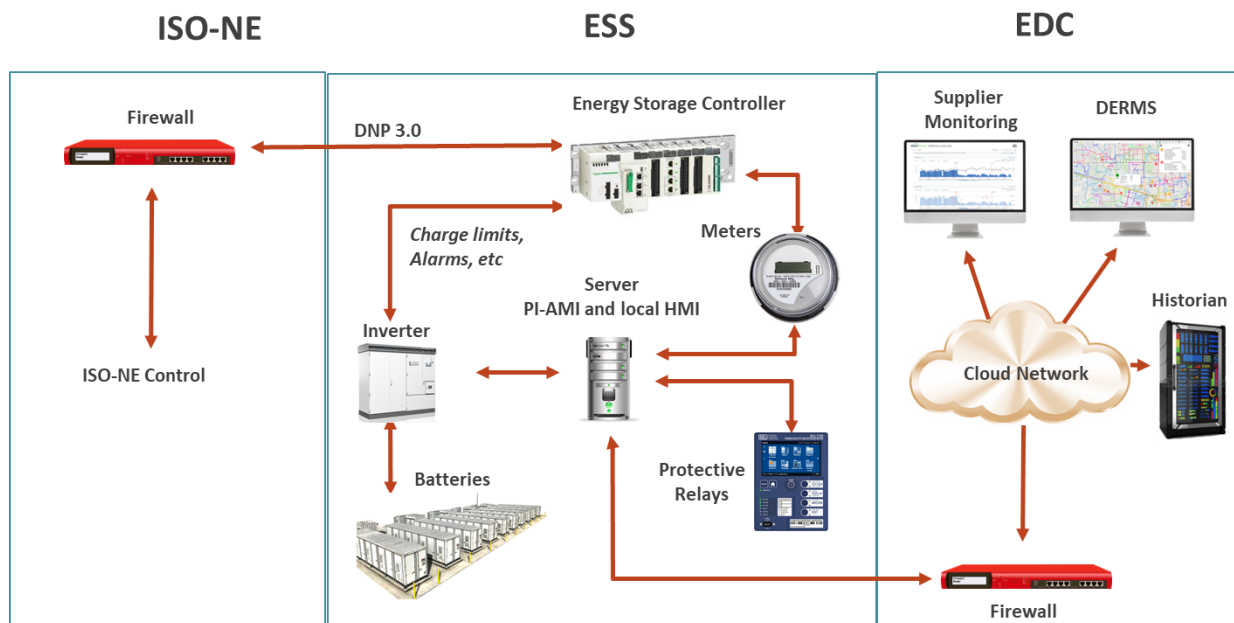


Figure 1 ESS Network and Supervisory Controls and Data Acquisition Diagram

## 6.1. Operational Agreements

The EDC and the Customers will ultimately enter into an operational agreement to manage the system dispatches and implement the right charging strategy. Key elements of such an agreement will be general operating standards, emergency conditions, and dispatching passive and active services. Networking and communication of the ESS with EDC supervisory controls will be critical to successful operation over the term of an agreement. Over time, integration with data acquisition (SCADA) systems will improve the performance and value of storage systems, ESS will be expected to incorporate SCADA communications as applicable.

### 6.1.1 General Operating Standards

Critical operating parameters that the Supplier should monitor throughout the ESS include but are not limited to: inverter AC and DC voltage, current, kW, kVA, kVAR, power factor; battery rack voltage and current, battery module min/max voltage, auxiliary system critical parameters, fire detection/suppression monitoring points, state of charge, and temperature monitoring points of the battery racks.

Utility grade meters that were selected according to ANSI standards will need to be maintained throughout the lifetime. Inspection and testing of all meters will conform to Good Utility Practice, but not less often

than every five (5) Contract Years at Supplier's expense. Upon reasonable written request to the Customer, the EDC will request, at its own expense, inspection or testing of any such meters more frequently.

### 6.1.2 Dispatching Passive and Active Services

Modes of operation include DSM activities and manual real power command as specified in the Program. To enable this operation and to support fast responding operation, controls equipment and basic communication protocols should be specified. The ESS should include functionality for remote charging, discharging, and ramp rate control operations for all 24 hours in a day and be capable of managing the state of charge while being synced to the distribution system grid.

## 6.2. Emergency Conditions

An Emergency Action Plan should be established to plan response actions that will be taken by remote Control Room Operators that oversee the 24/7 operation and other emergency personnel. These actions are intended to provide for the safe and reliable operation of the facility that can coordinate actions of safety staff and notify first responders. First responder orientation shall be at the expense of the Supplier, which is an essential part of managing risk. The Supplier is responsible for Instructions to advise on-site personnel during emergencies resulting from injury, or in response to environmental releases or security issues.

## 6.3. Battery System Maintenance, Internet Connection, and Durability Responsibility

Suppliers are responsible for maintaining the Customer's ESS so that it can respond to dispatch events. Performance data is expected to come from the ESS, not a separate meter, as dictated by the ANSI standard mentioned in section Technical Requirements. The incentive amount could be affected if: (1) an ESS is not properly maintained, (2) the internet connection to the ESS is not maintained, or (3) any other aspect that would cause the ESS to discharge less or be unable to properly report performance. Electric storage capacities degrade over time, causing them to be able to discharge less power and/or energy. This will also affect the incentive amount. Therefore, prior to enrolling in the Program, customers and their Supplier should consider the possibility of smaller than anticipated incentives due to lifecycle management decisions combined with expected performance decreases over the life of the ESS.

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## Section 7: Program Dispatch and Incentive Structure

CGB will administer the Passive Dispatch declining-block upfront incentive and the EDCs will administer the Active Dispatch ongoing performance incentive. To be eligible for upfront incentives, projects must meet the requirements defined in the “Technology Eligibility” and “Customer Eligibility” sections. Additionally, the ESS must be set to the passive dispatch default settings, or another acceptable use case determined by CGB and approved by the Authority. If the customer installed the ESS prior to January 1, 2022, or prior to receiving incentive application approval in the Program and does not have written approval from the Program Administrators, then the system is not eligible to participate in the Program. Customers who installed systems prior to January 1, 2022, who wish to participate in the program must submit an Application. Their ability to participate will be determined by the Program Administrators at their sole discretion. Such systems are still eligible for participation in the Connected Solutions program. Only new systems that receive the upfront incentive will be counted towards the Authority goal of 580 MW installed storage by 2030.

### Program Requirements

The EDCs have developed the following program requirements:

- There must be an appropriate interconnection agreement that meets the relevant EDC’s standard interconnection requirements.
- Ability to meet both the passive and active dispatch needs of the Program, including existing or intended software integration with dispatch platforms utilized in the Program, and the ability for technology to receive remote software upgrades.
- Approved electric storage technologies (See Appendix A) will require a real-time data sharing agreement with the EDCs.

The Program will allow for ESS’s to be both standalone and coupled with other energy resources (e.g., solar), if such configurations are also in compliance with EDC interconnection agreements. Both alternating current (AC)-couple (Figure 2) and direct current (DC)-coupled (Figure 3) battery systems are eligible for the Program.

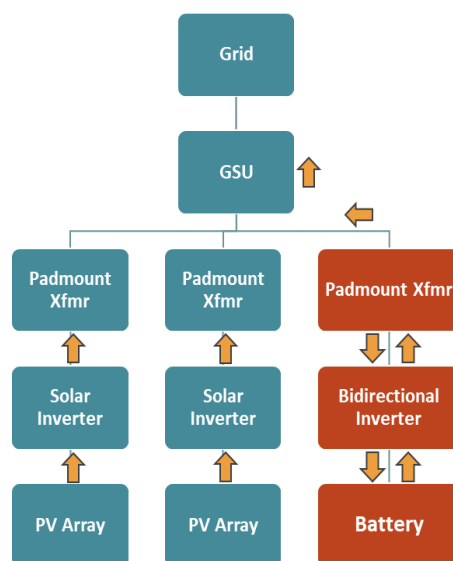


Figure 2 AC Coupled Solar with ESS

The primary difference between the AC and DC coupled solutions is that the DC-Coupled shares the same inverter as the solar system which produces different performance characteristics as the battery charge/discharge is limited by solar production. The generator step-up (GSU) is the common point of coupling for both configuration before interconnection with the distribution grid.

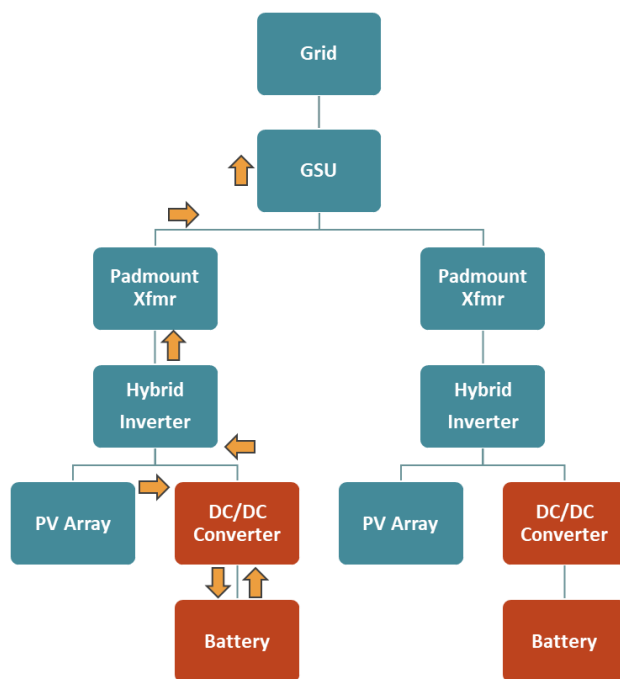


Figure 3 DC Coupled Solar with ESS

### 7.1. Passive Dispatch and Upfront Incentives

CGB, in consultation with the EDCs, will be responsible for developing the final guidelines governing passive dispatch.<sup>12</sup> Customers must participate in the passive dispatch portion of the Program in order to receive the declining-block upfront incentives. This requires setting the ESS to automatically store and dispatch energy through the ESS to reduce demand during summer peak periods (see Table 1). The EDCs will direct a notification of passive discharge events directly to the control platform of the customer’s ESS from their respective DERMS. Typically, the customer will not need to take any action for their ESS to respond to a passive discharge event. The Program Administrators will require that the passive dispatch settings be implemented through the DERMS and not at the device level, so that the settings can be easily monitored and updated through the DERMS if needed. The residential ESS’s participating in the program will be required to be able to export to the grid (over and above dispatching the ESS to meet on-site load) in order to maximize benefits to the grid.<sup>13</sup> The conditions that allow for exemption will be detailed in separate program materials as the factors affecting these conditions evolve.

<sup>12</sup> Authority, Order No. 3 in Docket No. 21-08-05. “No later than October 1, 2021, the Program Administrators shall also develop and file for the Authority’s review and approval rules guiding the distribution of the upfront incentive payment to participating electric storage system owners in Docket No. 21-08-05 consistent with the direction provided in Section III.C.”

<sup>13</sup> Unless interconnection is cost-prohibitive as detailed in Customer Enrollment Process

As part of the Application process, the Program Administrators will require all Program participants to provide an affidavit asserting compliance with the passive dispatch guidelines. Customers may deviate from passive dispatch program parameters under the following circumstances:

- During emergency events, as determined by the Program Administrators and/or participant.
- During active dispatch events as determined by the relevant EDC.
- To meet any ISO-NE or other obligations as allowed per “Co-Participation in ISO-NE Market Programs” section.

Residential customers are eligible for upfront incentives, administered by CT Green Bank, as defined in Table 3. The residential up-front incentive structure follows a declining block structure with decreasing \$/kWh incentive offerings as program participation meets stepped capacity milestones.

Customers must enroll 80% of the usable energy capacity into the Passive Dispatch Program. This leaves 20% capacity for customer resilience at any given time. The passive dispatch window is 5 hours in duration. A base output is requested during this 5-hour window. If the battery is at full charge, then the ESS must discharge 80% of its usable energy capacity uniformly over 5 hours to meet the passive dispatch requirement.

For example: a system with 12.5 kWh usable energy capacity will have 10 kWh available for Passive Dispatch and 2.5 kWh for reserve. During Passive Dispatch setting this ESS will discharge at an average rate of 2 kWh per hour for the 5-hour duration. This is illustrated in the chart below:

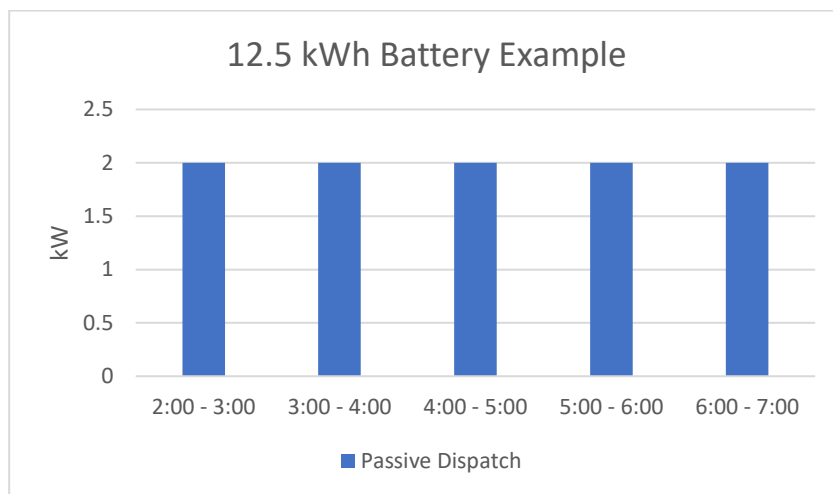


Figure 4 - 12.5 kWh Battery Passive Dispatch

Table 3 CGB Proposed Residential Customer Upfront Incentive (2022-2024)

Incentive Step	Estimated No. of Participants	Capacity Block (MW)	Standard (\$/kWh)*	Underserved (\$/kWh)*	Low-Income (\$/kWh)*	Average Upfront Incentive per System
1	2,000	10.0	\$200	\$300	\$400	\$3,375
2	3,000	15.0	\$170	\$255	\$340	\$2,869
3	5,000	25.0	\$130	\$195	\$260	\$2,194
<b>Total</b>	<b>10,000</b>	<b>50.0</b>				
*Upfront incentives are defined based on usable energy capacity (kWh)						

Commercial and Industrial customers are eligible for upfront incentives, administered by CGB, as defined in Table 4. The non-residential up-front incentive utilizes a single block with differentiation between small commercial, large commercial, and industrial customer types.

Table 4 CGB Proposed C&I Customer Upfront Incentive Structure (2022-2024)

Capacity Block (MW)	Upfront Incentive (\$/kWh)*		
	Small Commercial	Medium Commercial	Large Commercial
50.0	\$200	\$175	\$100
Small Commercial is a C&I customer with peak demand <200 kW Medium Commercial is a C&I customer with peak demand 200 kW - 500 kW Large Commercial is a C&I customer with peak demand >500 kW *Upfront incentives are defined based on usable energy capacity (kWh).			

Customers who receive upfront incentives will be required to participate in the Passive Dispatch program for a minimum of 10 years. Exiting from the Program before the end of this period, or non-performance in passive events during this period, will result in non-compliance with program requirements and the customer will be required to return a prorated portion of the un-earned incentive as determined by CGB. Customers who receive the upfront incentive will also be automatically enrolled in the Active Dispatch program.

### 7.1.1 Calculation of Upfront Incentive

The calculation of the upfront incentive is primarily based on the usable energy capacity (kWh) of the ESS, with some limiting factors. The upfront residential incentive is calculated based on the **minimum** of the following three formulas:

- Residential Formula 1: ESS usable (nameplate) energy capacity (kWh) \* \$200/kWh<sup>14</sup>

<sup>14</sup> kWh level as determined depending on the project type and incentive level as provided in Table 3



- Residential Formula 2: 50% of ESS total installed cost
- Residential Formula 3: Maximum per project incentive of \$7,500

The upfront non-residential incentive is calculated based on the **minimum** of the following two formulas:

- Non-Residential Formula 1. BESS usable energy capacity (kWh) \* \$200/kWh<sup>15</sup>
- Non-Residential Formula 2. 50% of BESS total installed cost

The following illustrative examples demonstrate how the incentive calculations work. For additional examples, please see the Program website and other program documentation.

**Example 1** - in the case of one 5 kW, 13.5 kWh battery with an installed cost of \$11,000, for a standard residential customer.

- 13.5 kWh \* \$200/kWh, or \$2,700
- 50% of \$11,000, or \$5,500
- Maximum incentive of \$7,500

The customer would receive an upfront incentive of \$2,700.

**Example 2** – in the case of two batteries that add up to 15.2 kW, 36 kWh with an installed cost of \$19,000, for a standard residential customer.

- 36 kWh \* \$200/kWh, or \$7,200
- 50% of \$19,000, or \$9,500
- Maximum incentive of \$7,500

The customer would receive an upfront incentive of \$7,200.

**Example 3** – in the case of two batteries that add up to 10 kW, 27 kWh with an installed cost of \$16,000, for a low-income residential customer.

- 27 kWh \* \$400/kWh, or \$10,800
- 50% of \$16,000, or \$8,000
- Maximum incentive of \$7,500

The customer would receive an upfront incentive of \$7,500.

**Example 4** – in the case of one 250 kW, 675 kWh battery for a medium-sized commercial customer with an installed cost of \$378,000.

- 675 kWh \* \$175/kWh, or \$118,125
- 50% of \$378,000, or \$189,000

The customer would receive an upfront incentive of \$118,125.

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<sup>15</sup> kWh level as determined depending on the project type and incentive level as provided in Table 4

## 7.2. Active Dispatch and Performance Incentives

All ESS’s participating in the Program must enroll in and communicate with the Active Dispatch element of the program. To receive ongoing performance incentives, the ESS must perform during the active dispatch events triggered by the EDC. Active events may occur any day during the summer season (June – September) and winter season (December – March) within the dispatch window of 9:00 AM and 9:00 PM. The standard event duration is expected to last 3 hours. However, EDC’s may call active events as 1- or 2-hour events as well. Notification of active discharge events will be sent directly to the Customer’s control system of the ESS, via the TPO if applicable. The Customer normally does not need to take any action for their battery system to respond to an active discharge event. In most cases the EDC will give 24-hour notification of an Active Dispatch. To support safe and reliable grid operations EDCs may call shorter notifications, including same day.

When an Active Dispatch event is called the Passive Dispatch event for that day is cancelled. In the situation that an active dispatch event is called by the EDCs during the passive dispatch hours, the active dispatch shall take precedence over the passive dispatch.

Table 5: Summer and Winter Active Dispatch Parameters

	Summer	Winter
Season Dates	June 1 – September 30	November 1 – March 31
Number of Events	30-60	1-5
Event Duration	1 - 3 hours	1 3 hours
Timing	9:00 AM to 9:00 PM	9:00 AM to 9:00 PM

The incentive rate tied to performance during active dispatch events for each option is shown in Table 6.

Table 6: Active Dispatch Performance Incentive for Cycle One (2022 – 2024)

ESS Performance Period	Opening Period (Years 1 – 5)	Closing Period (Years 6 – 10)
Summer Performance Incentive (\$/kW)*	\$200	\$115
Winter Performance Incentive (\$/kW)*	\$25	\$15
*Performance incentives are based on average kW-AC contribution during the season, determined by actual system performance during events as indicated by inverter data, not nameplate capacity.		

Participating customers are eligible to receive performance incentives for the same ESS for up to 10 years. This 10 Years of eligible performance is split into an opening period (years 1 – 5) and a closing period (years 6 – 10). Customers will also be granted a 24-month maximum construction hold commencing on the Reservation of Funds (ROF) date. The construction hold will temporarily lock in the performance incentive rates at that cycle while the ESS is built. The full 24-month hold requires certain milestones are met as described in Section 4: Enrollment. Systems built under 24 months may be immediately eligible to start their opening period. Systems that require longer than 24 months of construction or those that do not meet the required milestones within the hold must re-apply to the program and will be reviewed under that cycle rates current to that time.

If a system’s opening period is commenced mid-season that system will receive 0 kW as performance for any events missed but will be allowed to earn performance on any remaining events of that season. The performance incentive will be set in three-year periods with Cycle One set as “2022-2024”. During the next three-year review, the incentive may be re-evaluated and adjusted based on market conditions for Program Period Two (2025-2027).

Table 7. Project Application and Approval Timeline

Milestone	Duration
Application to Program	-
Application Approval	30 days (Max) from Application
Construction Hold	24 Months (Max) from ROF Approval (Described in Section 4: Enrollment)
Opening Period Start	The sooner of: 24 Months from Application approval or System ready for dispatch
Closing Period Start	5 Years from Opening Period Start
Program Performance End	5 Years from Closing Period Start

### 7.3. Active Dispatch Incentive Rates and Average Performance

Performance is measured as the average discharge capacity from the ESS across all active events during the given season. If a customer opts out of an event or has some communication or other issue that prevents them from discharging during an event, they will be given a 0 kW performance for that event. These will affect the customer’s average performance and incentive.

The performance-based incentive rates refer to the average dispatch amount across all events of the dispatch season. Approved Suppliers must provide twenty-four hours a day, seven days a week service with 15-minute intervals (or more granular data) for the entire demand response season in order to receive fees or for their customers to receive performance-based incentives. Performance per event is equal to the average discharge rate of the ESS in kW-AC over the length of the event as described below.

Customers cannot increase their performance for an event by curtailing solar photovoltaic production to increase the ESS discharge rate. For example, if the inverter size limits the total production of the solar photovoltaic system and ESS, then the Customer cannot limit the solar photovoltaic system during a dispatch event so that the battery can discharge more. As a result, the Program Administrators will require that the ESS provides discharge performance value disaggregated from coincident solar production. Solar inverters and controllers must operate in maximum power point tracking (MPPT) mode at all times and this parameter must be reporting to the DERMS platform through the Supplier SCADA system.

The Active Dispatch program does not require the customer to hold any reserve capacity. Events will dispatch assuming all capacity is available to the program. Therefore, customers may dispatch their full capacity during Active Events to maximize performance incentives. This would yield an average dispatch of 1/3 of the usable energy capacity per hour during a 3-hour event for a fully charged battery.

Using the previous example of a 12.5 kWh system, a customer with a fully charged system and no reserve capacity would be able to participate at 4.16 kWh per hour over a 3-hour active dispatch event, for an average of 4.16 kW for that event. However, if the customer chose a 20% reserve capacity (12 kWh dispatch capacity), they would discharge an average of 4kW across a 3-hour event. This assumes that the Active Dispatch is called before the start of the Passive Dispatch for the day.<sup>16</sup>

Continuing with this example a typical summer season may have 40 active dispatch events call. This customer did not participate in 5 events. This could be due to many reasons such as the ESS not being installed until mid-season, customer opt-outs, or Supplier unable to provide data. In all cases of non-participation, the customer is given 0 kW across those event hours. However, for the remaining event hours the customer participated at an average hourly output of 4 kW. The average of 5 3-hour events at 0 kW and 35 3-hour events at 4 kW is an average summer seasonal performance of 3.5 kW. The summer performance incentive will be calculated as  $\$200/\text{kW} \times 3.5 \text{ kW} = \$700$ .

The average season performance for winter events will be a separate additive incentive calculation using the same process, based on the winter performance rate. If the customer in the example participates, as expected, at 4 kW for all winter event the incentive would be calculated as:  $\$25/\text{kW} \times 4 \text{ kW} = \$100$ . Over the course of both seasons this customer was able to earn  $\$700 + \$100 = \$800$  in Active Dispatch performance incentives for the year.

The calculation of incentive benefit specified here is subject to change by the Program Administrators (with PURA's approval) and will be indicated on the Program website, customer enrollment forms and other program materials.

#### 7.4. Incentive Payment Process

CGB will administer all upfront incentive payments following the approval of the Application, an inspection or self-inspection of the system's installation at the discretion of the Program Administrators, and the provision of proof of enrollment in both active and passive dispatch portions of the Program. The relevant EDC will administer the incentive payments for summer and winter performance, as calculated in the "Incentive Rates and Average Performance" section and plan to offer an annual lump sum payment. Once enrolled in the Program, the EDC will add the customer's ESS to their DERMS system.

##### 7.4.1 Upfront Incentive Payments

Upfront incentives are provided as upfront discounts or reflected in the customer's purchase or lease agreement with their Contractor or TPO. CGB will disburse upfront incentive reimbursements to eligible Contractors, TPOs, or participating ESS owners as indicated on the Application. If payments to entities besides the Customer account holder (i.e., TPO) are requested the Customer and other entity must both sign and acknowledge this on the Application.

After incentive approval and once the system is installed and energized, Suppliers shall submit proof of project completion and interconnection through the online enrollment platform. Once verified by CGB that installation was performed in accordance with the original or amended incentive application, all completion documentation has been submitted and approved, passive and dispatch enrollment has been verified, and

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<sup>16</sup> If a same-day active dispatch event is scheduled to ensure the safety and reliability of the grid, and the customer's system is not fully charged at the time of the event, the customer will still be able to claim full participation in the event for incentive calculation purposes.

all applicable program requirements have been met, the project will be eligible to have the upfront incentive reimbursed to the Supplier. CGB will process incentive reimbursement payments to Suppliers in monthly batches.

If a battery system is not installed properly or in accordance with the proposed system specifications submitted to the Program Administrator, CGB reserves the right to withhold or recalculate upfront incentive payments based on actual installed equipment and site conditions. Additionally, the Program Administrator may stop approving incentive applications and/or withhold payments for Suppliers that consistently have problems properly installing ESS and/or complying with the requirements of the Program.

Additional information regarding the upfront incentive payment will be made available by the Program Administrator in a separate document on Program website.

#### 7.4.2 Performance Incentive Payments

Performance incentives will be calculated in accordance with Sec. 7.3. and paid by the EDCs following the Summer and Winter seasons.

##### 7.4.2.1. Direct Payments

Battery storage owners will have access to on-bill payment or direct payment options, which will support PURA’s key Program objectives, including facilitating deployment of battery storage in LMI and vulnerable communities, while at the same time reducing risk to homeowners and capital providers and lowering system financing costs.

Customers can designate a direct payment payee at the time of enrollment, and EDCs will assign upfront and/or performance incentive payments in part or in full to a TPO or financial institution, as specified by the Customer.

#### 7.5. Days for Demand Response Events (Active and Passive)

Active discharge events are called on weekends, weekdays, or holidays – for both summer and winter.

Passive discharge events are limited to non-holiday weekdays during the Summer season (July & August) only. Holidays excluded from passive dispatch events include:

Table 8: Holidays for Passive Dispatch Events

Dispatch Season	Holiday	Typical Date
Summer	Independence Day	July 4
Summer	Juneteenth	June 19

#### 7.6. No Demand Response Events Before Large Storms

Customers often purchase energy storage systems in part for backup power during power outages. Under non-storm operating scenarios, no more than 80 percent of usable energy capacity will be used during passive events, leaving 20 percent available for backup power. The EDC’s will not call events (Active or Passive) for the two (2) days preceding predicted severe outage events and during emergency conditions.

## 7.7. Performance Testing

The Program Administrators may conduct performance tests of the ESS during installation or during periodic inspections. However, the Program Administrators may periodically elect to run communication tests to ensure all notification processes are functioning. An ESS Commissioning & Acceptance Testing program that will ensure that system perform as designed and that the system meets the Technical Requirements and performs as expected. Commissioning documentation typically includes but is not limited to:

- Electrical Design verification
- Certificates of Code Compliance
- Power/Energy Capability testing
- Modes of Operation testing in Local/Remote Control
- Functional acceptance testing of fire detection and suppression
- Network Integration and SCADA point verification
- First Responder orientation record

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## Section 8: Storage Configuration Considerations

### 8.1. Co-Participation in ISO-NE Market Programs

Residential, commercial, and industrial customers and/or the corresponding TPO will be able retain capacity rights without the ability to monetize such rights (i.e., participation in the ISO-NE FCM) as the default Program arrangement. However, in four select customer cases, TPOs and C&I customers will be permitted to request capacity rights in order to monetize storage assets into ISO-NE market programs: Customers on the Grid Edge, Critical Facilities, C&I Customers with Fossil Fuel Generators, and Small Business Customers. Definitions and limitations for each customer class eligible for capacity right application are defined below.

Customers who are participating in ISO-NE at the same facility but not through the storage assets supported by this program (traditional curtailment) will still retain the rights to that capacity. Electric storage system operators with capacity rights must adopt the passive dispatch settings established pursuant to the Authority's final decision. However, they may operate outside the passive dispatch parameters to meet ISO-NE market obligations if they meet all requirements established by the operational control model. Projects that do not participate in an active demand response event will not receive the corresponding performance incentive.

#### 8.1.1 Customers on the Grid Edge

Customers on the Grid Edge are defined as top ten percent of circuits with the highest number of outages per customer during major storms since July 1, 2012, and (2) the top ten percent of circuits with the longest outages due to major storms since July 1, 2012. A map of circuits that meet grid edge criteria can be found in the Program's website.

During the incentive application process, customers identified as Grid Edge, must:

1. Inform Program Administrators whether they intend to participate in the ISO-NE FCM, and
2. Request from CGB capacity rights associated with their projects.

Only after the incentive application is approved, CGB will notify Customers of the status of their request.

#### 8.1.2 Critical Facilities

For the purposes of the Program, Critical Facilities shall be defined according to Conn. Gen. Stat. § 16-243y(a)(2), as well as known facilities that were designated essential by the DECD pursuant to Governor Lamont's Executive Order 7H.<sup>17</sup>

During the incentive application process, customers identified as Critical Facilities, must:

1. Inform Program Administrators whether they intend to participate in the ISO-NE FCM,
2. Request from CGB capacity rights associated with their projects, and
3. Submit a Resiliency Plan that demonstrates how their system would be recharged when grid-charging is otherwise unavailable.

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<sup>17</sup> EDCs will confirm applicant's qualification as a critical facility as part of the application process.

Only after the incentive application is approved, CGB will notify Customers of the status of their request.

### 8.1.3 Commercial and Industrial Customers with Fossil Fuel Generators

This category applies to customers who are replacing their existing fossil fuel generators with electric storage systems. Customers must provide a resiliency plan when applying for this designation.

During the incentive application process, customers identified as Commercial and Industrial with fossil fuel generators, must:

1. Inform Program Administrators whether they intend to participate in the ISO-NE FCM,
2. Request from CGB capacity rights associated with their projects,
3. Submit a Resiliency Plan that demonstrates how their system would be recharged when grid-charging is otherwise unavailable, and
4. Provide proof that the fossil fuel generator being replaced will be decommissioned.

Only after the incentive application is approved, CGB will notify Customers of the status of their request.

### 8.1.4 Small Business Customers

Small business customers are commercial and industrial customers with less than 200 kW peak load. Customers must provide a resiliency plan when applying for this designation.

During the incentive application process, customers identified as Small Business Customers, must:

1. Inform Program Administrators whether they intend to participate in the ISO-NE FCM,
2. Request from CGB capacity rights associated with their projects, and
3. Submit a Resiliency Plan that demonstrates how their system would be recharged when grid-charging is otherwise unavailable.

Only after the incentive application is approved, CGB will notify Customers of the status of their request.

## 8.2. ISO-NE Market Participation Verification Process

During the incentive application process, customers must inform Program Administrators of their intent to participate in the ISO-NE Forward Capacity Market (FCM) and/or ancillary services market.

Battery Storage Systems participating in the Program may participate in ISO-NE ancillary services market that allow participation by load reducers. Accordingly, such projects shall operate under the passive dispatch settings to the furthest possible extent but can override the baseline settings in order to satisfy any ISO-NE market requirements.

Following each Passive and Active Dispatch season, individual battery owners or battery aggregators participating in FCM or ancillary services market, must submit a self-certification stating whether they participated in ISO-NE markets, including the market they participated in, and the days and hours of such participation. Program Administrators will work with EM&V Provider to confirm ISO-NE market participation by these assets, and the level of their participation, in order to better understand how such participation



impacts the expected Program benefit-cost ratios and any implications for the Program's active and passive dispatch settings.

### 8.3. Monetization of Capacity Rights

Only project owners as specified in Section 8.1 can monetize capacity rights in the ISO-New England Forward Capacity Markets via Forward Capacity Auctions (FCA), Annual Reconfiguration Auctions (ARA) or Monthly Reconfiguration Auctions (MRA).

To ensure that the ratepayer benefits that the Authority is seeking are achieved (i.e.,  $RIM \geq 1.4$  for the Program), the Program Administrators will impose a limit of no more than 25% of systems eligible to participate in the FCM will be able to monetize capacity rights within the first three-year cycle.

Program Administrators will develop an ISO-NE market participation verification process to better understand how such participation impacts the expected Program benefit-cost ratios and any implications for the Program's active and passive dispatch settings, and its findings will be incorporated in Program annual reports.

### 8.4. Storage Configurations & Interconnection

#### 8.4.1 Renewable Energy Plus Storage

Customers with interconnected renewable energy systems, such as solar photovoltaics and wind turbines, may participate in the Program. The investment tax credit (ITC), also known as the federal solar tax credit, may provide added incentives for energy storage systems charged by renewable energy systems. The battery system's performance will be limited by the terms and conditions established in the approved interconnection agreement.

#### 8.4.2 Storage Only Systems

Customers who do not have a renewable energy system but do have an energy storage system that charges from the grid may participate in the Program. If the customer will be discharging electricity to the grid, they must go through the normal interconnection process with their relevant EDC. The battery system's performance will be limited by the terms and conditions established in the approved interconnection agreement.

## Appendix A: List of Eligible Electric Energy Storage Systems

The following ESS's have been pre-approved to meet the requirements of the Program. To view the most updated list or to request an addition to this list, visit the Program website.

Manufacturer	Eligible Inverters	Eligible Batteries
Enphase	IQ Series microinverters	Encharge 3
	M Series microinverters	Encharge 10
		Tesla Powerwall 2**
		Tesla Powerwall+**
Generac	Model 700 Series	Panasonic (DCB)*
	Model 11400 Series	Generac (EX)
Sol-Ark	Sol-Ark 12k	Any 48V Battery
	Sol-Ark 8k	
	Sol-Ark 5k	
SolarEdge	SE3000H-US	LG Chem RESU10H
	SE3800H-US	Tesla Powerwall 2**
	SE3800A-US	Tesla Powerwall+**
	SE6000H-US	
	SE7600H-US	
	SE7600A-US	
Sonnen	Outback Power Radian Inverter	Sonnen Eco
		Sonnen Ecolinx
Tesla	All Solar Inverters	Tesla Powerwall 2**
		Tesla Powerwall+**

\* If connected to an eligible inverter

\*\*Tesla Powerwall has internal inverter

# Appendix B: Customer Information Disclosure Agreement



## Smart-E Loan Acknowledgement / Disclosure Agreement

### Utility, Energy Supplier, Loan Account Holder and Program Information Release

**WHY WE NEED A RELEASE** – For Connecticut Green Bank to offer more Smart-E Loans over time, we need access to utility account and actual energy usage data for your home, energy costs, underwriting and loan repayment records, as well as data on energy saving measures installed in your home (collectively “Data”). This Data will allow us to aggregate and understand estimated and actual savings for home energy improvements provided by participating contractors, ensure that installed measures are delivering the expected energy savings, and understand the performance of these loans. This Data will also be used by Connecticut Green Bank to evaluate the effectiveness of Smart-E Loans. We take the security and privacy of your information very seriously. Connecticut Green Bank will protect the confidentiality of your Data in compliance with all applicable laws. Data may be anonymized and released in the aggregate for research purposes, but we will never release personal data, and we will never sell or rent aggregated data.

**ENERGY USAGE, CONSERVATION, UNDERWRITING and REPAYMENT INFORMATION RELEASE** – As the holder of the above accounts, I hereby authorize and give permission to the utilities, energy suppliers, and loan providers named above to release the Data to Connecticut Green Bank or its agents for confidential use in connection with calculating estimated and actual energy savings, tracking my loan repayment record, and for evaluating the effectiveness of this financial product. This permission is given for 1) my historic and future energy usage and monthly and total amount of energy used at my utility service address; 2) the total monthly price charged for fuels used by my household; 3) my loan repayment record; and 4) program-related information. In addition to the use of the Data for the evaluation of the Smart-E Loan product, the Data may also be anonymized and released in the aggregate.

**PROGRAM DATA RELEASE** – As a recipient of financing supported by Connecticut Green Bank, a quasi-public agency of the State of Connecticut, I hereby authorize Connecticut Green Bank to access my Data and release it to program partners for confidential use in connection with calculating estimated and actual energy savings, evaluation of the effectiveness of this product, and understanding performance of this type of financing in the aggregate; and, in addition, I authorize Connecticut Green Bank to use my anonymized data or anonymized aggregated energy usage data.

**RELEASE PERIOD** – This authorization covers Data for the period starting 18 months before the date below and ending at the time of repayment of the loan.

I certify that I have read and understand the program requirements and that I must use proceeds I obtain through a Smart-E loan to install energy-related measures based on, or non-materially modified from, the individual contractor(s) proposal(s), which are submitted with this Data Release Form for eligibility approval. I understand that my contractor must submit this sheet, along with a proposal for energy upgrades to the Connecticut Green Bank for technical approval. A list of Participating Lenders, including a summary of applicable fees and charges, can be obtained at [www.EnergizeCT.com/smart-e](http://www.EnergizeCT.com/smart-e). However, I understand that receipt of a loan is contingent upon the eligibility of the measures proposed for financing, and I must obtain a signed, itemized proposal from an approved contractor.

The actual amount of the Loan will be determined by the actual costs of all approved measures. The loan amount may be net of any additional state rebates from my utility company, the Connecticut Energy Efficiency Fund and/or Connecticut Green Bank.

I understand that completing this Data Release Form does not guarantee approval for a loan or membership in a participating lending institution. Loans must be provided directly by a Participating Lender. I understand that I should not complete any measures listed in my application or otherwise rely on the funds of the Loan until I receive a formal commitment from a Participating Lender.

Connecticut Green Bank is a “public agency” for purposes of the Connecticut Freedom of Information Act (“FOIA”). Information received pursuant to this proposal will be considered public records and will be subject to disclosure under the FOIA, except for information falling within one of the exemptions in Conn. Gen. Stat. Sections § 1-210(b) and § 16-245n(d), which may be withheld at Connecticut Green Bank’s discretion.

**HOMEOWNER:**

**I hereby release and hold harmless Connecticut Green Bank, the above-named utilities and energy suppliers and loan account holders, and their affiliates, employees, officers and agents from any and all liability associated with the dissemination and use of such account and program information and this authorization.**

**I have read, understood, and agree to the Terms and Conditions above.**

*An electronic signature may be accepted with the same authority as a hard copy.*

*Loan Applicant signature(s):*

*Date:*

*Printed Name:*

*Mailing Address:*

*Utility Service Address (if different):*

*Electric Utility Account Number:*

**Questions?** Please email [smarte@ctgreenbank.com](mailto:smarte@ctgreenbank.com) or call (860) 357-5676

v062018



# Marketing Plan

for

**[Name of Program]**

October 1, 2021

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## Section 1 – Introduction<sup>1</sup>

On Thursday, August 19, 2021, the media announced that Tropical Storm Henri could impact New England as a Category 1 hurricane – what would have been the first to hit New England since Category 2 from Hurricane Bob in 1991.<sup>2</sup> In response to the announcement, on Saturday, August 21, 2021, Eversource reported that between half to 69 percent of Connecticut customers could face power outages due to severe weather projected on Sunday, that restoration efforts could take up to 21 days, and Eversource declared an Emergency Response Plan starting Sunday at 6:00 a.m.<sup>3</sup> In anticipation of widespread damage from high winds, heavy rain, and a potential storm surge, Eversource repositioned line and tree crews, equipment and other resources to be ready for significant, widespread damage that they expected from the storm. In conjunction with Eversource’s response efforts, Governor Lamont declared a state of emergency and told residents to shelter in place from Sunday afternoon until at least Monday morning.

At the same time as the approaching hurricane, according to projections from ISO New England, the electric grid was experiencing normal demand resulting from moderate temperatures and humidity.<sup>4</sup> In Connecticut, in the month of August, residents typically experience high temperatures and humidity, resulting in higher-than-normal demand for electricity. And, heading into the weekend, the system-wide electricity peak demand is usually not an issue.

Despite the predictions, Hurricane Henri resulted in lost power for 60,000 customers in Connecticut – far less than the 50-69% of initial utility projections for the hurricane, and the 800,000 customers that lost power during Tropical Storm Isaias.<sup>5</sup>

Although Hurricane Henri had a limited impact, it’s easy to imagine an alternate reality where the storm directly struck Connecticut. Hurricanes Henri and Isaias provide an important use case for the role that battery storage could play in providing resilience for residential, commercial, and industrial end-use customers. A survey completed by Guidehouse for the Connecticut Green Bank (“Green Bank”) in July of 2020 indicated that back-up power in the event of a power outage is the single most valuable aspect of battery storage for potential residential customers.<sup>6</sup> [Name of Program] will enable customers across Connecticut to feel more secure in the face of looming climate change events while providing benefits to all ratepayers during blue-sky days by reducing peak electric demand.

The Public Utilities Regulatory Authority (“PURA” or “Authority”) through its decision in Docket No. 17-12-03RE03 (“Docket”), otherwise known as the Electric Storage Program (“Program”),

<sup>1</sup> Order 9 – No later than October 1, 2021, the CGB shall submit a communication and promotion plan (Marketing Plan) for the Authority’s review and approval, incorporating all direction provided herein in Docket No. 21-08-05.

<sup>2</sup> The Washington Post’s Capital Weather Gang (August 19, 2021)

<sup>3</sup> Newsweek (August 21, 2021)

<sup>4</sup> ISO New England – Hourly Real-Time System Demand

<sup>5</sup> Hartford Courant “Heavy rain, limited damage” (August 24, 2021)

<sup>6</sup> Battery Storage and Solar PV – Residential Customer Survey (i.e., administered June 24 through July 9, 2020) responses for the question “How valuable are the following aspects of battery storage to you in considering the purchase of a battery storage system?”

identified seven (7) objectives (“Program Objectives”) in which it seeks the Green Bank, Eversource Energy, and United Illuminating (“Program Administrators”) to deliver.<sup>7</sup>

In brief, the keys to the Program include the following:

- **Deployment** – deploying 580 MW of behind-the-meter battery storage by the end of 2030 – of which 290 MW will be deployed for residential end-use customers and 290 MW will be deployed for commercial and industrial end-use customers;<sup>8</sup>
- **Customer Incentives** – offering upfront and ongoing performance-based incentives to participating residential, commercial, and industrial end-use customers, requiring default settings and active dispatch of both standalone electric storage systems and those paired with solar PV;
- **Vulnerable Communities** – providing additional upfront incentives to participants from vulnerable communities, including low-income households,<sup>9</sup> underserved communities,<sup>10</sup> those living in affordable multifamily housing, and medical hardship customers such that no less than 40 percent of installations are deployed in vulnerable communities;
- **Resilience** – supporting additional revenue streams through the monetization of bidding capacity rights in the forward capacity markets of ISO-New England for customer classes deemed most at-risk, limited to customers installing battery storage systems located on the grid edge, in a critical facility,<sup>11</sup> replacing fossil fuel generators, and/or systems acquired by small business customers<sup>12</sup>;
- **Ratepayer Benefits** – ensuring benefits to electric ratepayers from peak load reduction from the dispatch of the battery storage systems exceed the costs of the Program through achieving a Ratepayer Impact Measure (“RIM”)  $\geq 1.4$  demonstrating no cost shift of the Program from participants to ratepayers; and
- **Economic Development** – administering a program that fosters the sustained orderly development of a local battery storage industry.

The Marketing Plan,<sup>13</sup> including the budget and tactics, supports the achievement of these aspects of the Program, as it applies to the first three-year cycle (i.e., deployment of 100 MW by the end of 2024), with a particular focus on targeted communications to deliver ratepayer benefits (i.e.,  $RIM \geq 1.4$ ) while prioritizing vulnerable communities (i.e., low income,

<sup>7</sup> For the objectives, see Docket No. 17-12-03RE03 Final Decision. It should be noted that these objectives are also consistent with PA 21-53.

<sup>8</sup> It should be noted that beyond 580 MW of BTM residential, commercial, and industrial end-use customers reached in the decision, that additionally, front of the meter installations are additionally being considered within Docket No. 17-12-03RE03

<sup>9</sup> Those less than 60% area median income that demonstrate need

<sup>10</sup> Environmental justice community as defined per CGS 22a-20a

<sup>11</sup> Critical facilities as defined per CGS 16-243y(a)(2) and Executive Order 7H

<sup>12</sup> Small business customer means a commercial or industrial electric customer with less than a 200-kW peak load

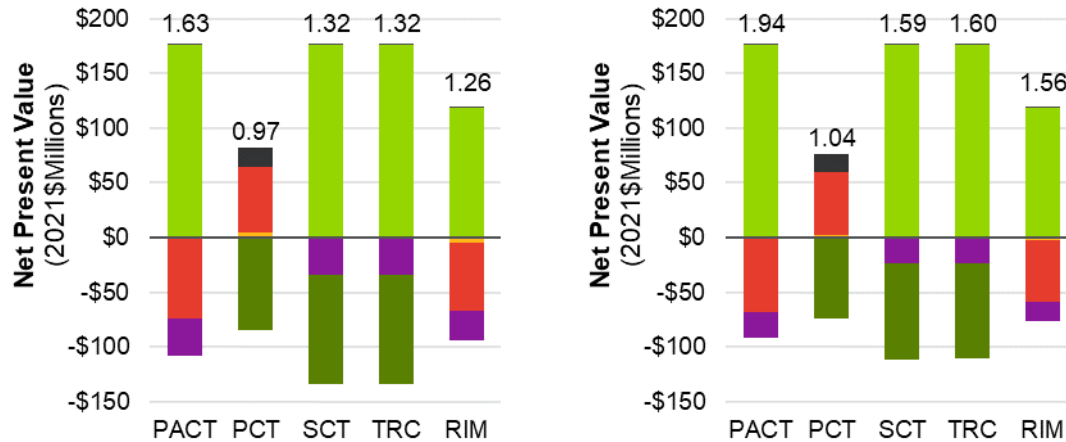
<sup>13</sup> “Specifically, the CGB shall develop a communication and promotion plan (Marketing Plan) in collaboration with the EDCs, incorporating the above direction for the Authority’s review and approval no later than October 1, 2021...Additionally, the CGB shall conduct a targeted communication and outreach campaign to recruit the customers defined in Sections III.C.1.a. and III.D.1. into the Program, namely low-income customers, customers in environmental justice communities and distressed municipalities, customers on the grid edge, critical facilities, facilities with existing fossil fuel generators, and small business customers” (Page 41 of the Authority’s Decision in Docket No. 17-12-03RE03 on July 28, 2021).



environmental justice, affordable housing, and medical hardship) and resilience (i.e., grid edge, critical facilities, facilities with existing fossil fuel generators, and small business customers) for residential, commercial, and industrial end-use customers.

The benefit cost analysis of the [Name of Program] demonstrates positive participant, ratepayer, and Program Administrator benefits for both residential and non-residential (i.e., commercial and industrial) end-use customers – see Figure 1.

Figure 1. BCAs for Target Residential (left image) and Non-Residential (right image) End-Use Customers<sup>14</sup>



It should be noted that solar PV paired with battery storage presents the greater economic value (i.e., PCT of 1) to residential and non-residential end-use participants, and therefore is the likely use case for battery storage in the Program.

Per the PURA final decision, it should be noted that all communications shall clearly convey that the Program Administrators are partnering to bring customers the Electric Storage Program overseen by PURA and paid for by ratepayers – see Attachment A as an example press release. And, that the Green Bank, working in collaboration with the EDCs, shall recruit targeted customers as outlined in the Authority’s decision within the Docket.

<sup>14</sup> These BCAs assume solar PV paired with battery storage improving the PCT from 0.75 and 0.76, respectively, as well as no more than 25% of the capacity rights being monetized in the Forward Capacity Markets for both residential and non-residential end-use customers participating in the Program.

## Section 2 – Residential Market Opportunity

### 2.1. Residential Market Sizing

There are approximately 3,575,074<sup>15</sup> residents in Connecticut living in 1,370,746 housing units – see Table 1. Of these housing units, approximately 1,129,558 (i.e., 82%) are single family (i.e., residential 1-4 units) and 241,178 (i.e., 18%) are multifamily (i.e., residential 5 or more units).

Table 1. Distribution of Housing Units in Connecticut by Area Median (AMI) Income<sup>16</sup> and Ownership<sup>17</sup>

# of Housing Units 1,370,746					
Non-LMI 677,249 49% (≥100% AMI)			LMI 693,487 51% (<100% AMI)		
		Moderate Income 252,650 18% (80-100% AMI)		Low Income <sup>18</sup> 440,837 32% (<80% AMI)	
Own	Rent	Own	Rent	Own	Rent
560,384 41%	116,865 9%	165,500 12%	87,150 6%	179,797 13%	261,040 19%

There are over 1,500,000 residential electricity customers in Connecticut being served by Eversource and United Illuminating, consuming 12,500,000 MWh of electricity and paying nearly \$2.7 billion in electricity costs per year.<sup>19</sup>

#### National Market – Residential Battery Storage Overview

In a recent study released by Lawrence Berkeley National Laboratory (“LBNL”),<sup>20</sup> consisting of approximately 50,000 paired residential solar PV and battery storage systems, there are a number of useful insights relevant to Connecticut, including:

- **Paired with Solar PV** – of the 3,200 MW of battery storage capacity installed in the U.S., approximately 1,000 MW (or 30%) is behind-the-meter (“BTM”), and of that 550 MW is paired with solar PV. The vast majority (i.e., 80%) of residential storage is paired with solar PV, driven by investment tax credit (“ITC”) rules, net metering (“NEM”) reform, and resilience considerations.
- **Adoption by Higher Income** – residential paired solar PV and battery storage adopters generally have higher incomes than standalone solar PV adopters – see Figure 2. As

<sup>15</sup> U.S. Census Bureau; American Community Survey, 2019 American Community Survey 5-Year Estimates, Table DP05

<sup>16</sup> U.S. Census Bureau; American Community Survey, 2019 American Community Survey 5-Year Estimates, Table DP03

<sup>17</sup> U.S. Census Bureau; American Community Survey, 2019 American Community Survey 5-Year Estimates, Table B25032

<sup>18</sup> It should be noted, that given the PURA definition of low-income is less than 60% AMI, that there are 232,116 homes, of which 70,514 are owned and 161,602 are rented.

<sup>19</sup> EIA CT 2019

<sup>20</sup> “Behind-the-Meter Solar+Storage: Market Data and Trends” by Lawrence Berkeley National Laboratory (July 2021)

can be seen by the figure, among the leading solar PV states in the country, Connecticut has a more equitable distribution of standalone solar PV by income as a result of the RSIP, and the Program Administrators seek to achieve the same with battery storage through the Program.

Figure 2. Residential-Adopter Median Incomes: Paired vs. Standalone Solar PV (% of Area Median Income)



- **Adoption via Solar PV Retrofits** – a significant portion of battery storage systems paired with solar PV in California consist of battery storage retrofits to existing PV systems (i.e., 25%).
- **Battery Technology Dominance** – the residential market is dominated by two (2) battery storage technology products – Tesla Powerwall (5 kW, 13.5 kWh, and 2.7-hour duration) and LG Chem RESU 10H (5 kW, 9.3 kWh, and 1.9-hour duration).
- **Installed Costs** – incremental cost of adding battery storage to solar PV of \$1,000/kWh<sub>storage</sub> (i.e., \$700-\$1,300 range) for retrofits or an installed price premium for solar PV of \$1.2/W<sub>PV</sub> (i.e., \$1.15-\$1.50 range) for new paired systems.
- **Load Served** – based on state storage program incentive level, average energy consumption customers could expect 60-80% of their total annual electricity load to be served by battery storage systems paired with solar PV. High consumption customers observed 45-65% load coverage.

The findings of the LBNL report on the national market raise useful insights into the market for battery storage and solar PV in Connecticut. Storage, alone or paired with solar will be a valuable tool as the State transitions from NEM to a tariff-based compensation structure, increases focus on vulnerable community priorities, and faces increasing risk from climate change.

**Connecticut Market – Residential Solar PV**

As indicated by the above-mentioned LBNL report, storage paired with solar PV is a popular avenue for deploying storage systems in the residential market – see Tables 2 and 3.

Table 2. Residential Solar PV Systems Installed in Connecticut between 1/2012-7/2021<sup>21</sup>

	Total	Homeowner Owned	Third-Party Owned
Number of Projects	42,521	11,420	31,101

<sup>21</sup> Note – numbers do not include interconnected residential solar PV projects that did not go through the RSIP

		(26.8%)	(73.2%)
Total Installed Capacity	343.3 MW	99.6 MW (29.1%)	243.6 MW (70.9%)

**Table 3. Residential Solar PV Systems Installed in Low Income or Underserved Community Households in Connecticut between 1/2012-7/2021<sup>22</sup>**

	<b>Total</b>	<b>Low Income</b>	<b>Underserved Community</b>
Number of Projects (% of Total Installations)	16,165 (38.0%)	3,652 (8.6%)	12,513 (29.4%)
Total Installed Capacity (% of Total Installations)	113.3 MW (33.0%)	23.4 MW (6.8%)	89.9 MW (26.2%)

Through the Green Bank’s administration of the RSIP, the Program Administrators used the breakdown between low-income (i.e., 8.6% of projects) and underserved community households (i.e., 29.4%) as observed in the RSIP data to set [Name of Program] low-income (i.e., 10%) and underserved community (i.e., 30%) storage adoption targets, ensuring a total of no less than 40% of residential storage incentivized under this program be installed in vulnerable communities.

The Program Administrators intend to focus the initial deployment of battery storage systems to pair with existing solar PV (i.e., retrofits) given the economics of such systems (e.g., access to the federal investment tax credit, sales and property tax exemptions in Connecticut). As such, existing solar PV customers (i.e. within and outside of the RSIP), as well as residential customers as of January 1, 2022, that participate in the renewable energy tariff will be the initial primary market for battery storage in Connecticut.

#### Connecticut Market – Residential HES and HES-IE and SCEF

The Program Administrators expect that residential end-use customers installing standalone battery storage systems through the Home Energy Solutions (“HES”), Home Energy Solutions – Income Eligible (“HES-IE”), or Shared Clean Energy Facility (“SCEF”) channels will be strong secondary market channels for [Name of Program].

Between Jan 1, 2006, and Sept 7, 2021, 535,083 HES and HES-IE projects (single and multifamily properties) have been completed in Connecticut.

SCEF provides an excellent opportunity to support the deployment of standalone battery storage systems in low-income single-family and affordable multifamily owned or rented units.

To maximize the value of storage, whether standalone or paired with solar PV, reducing load through investments in energy efficiency is important.

#### Connecticut Market – Initial Target Customers

Between existing 42,521 residential solar PV, 535,083 HES or HES-IE customers, and future low-income subscribers to SCEF in Connecticut, there is an existing target market for battery

<sup>22</sup> As designated by Department of Economic and Community Development [in 2020](https://portal.ct.gov/DECD/Content/About_DECD/Research-and-Publications/02_Review_Publications/Distressed-Municipalities):  
[https://portal.ct.gov/DECD/Content/About\\_DECD/Research-and-Publications/02\\_Review\\_Publications/Distressed-Municipalities](https://portal.ct.gov/DECD/Content/About_DECD/Research-and-Publications/02_Review_Publications/Distressed-Municipalities)

storage systems paired with solar PV or standalone battery storage systems of over one-half-a-million residential end-use customers. And, as Connecticut transitions from NEM to a tariff for BTM renewable energy systems, we expect a large market opportunity for new solar PV systems paired with battery storage.

## 2.2. Deployment Targets and Incentive Structure

By the end of 2024, there will be no less than 50 MW of behind the meter battery storage deployed for stand-alone systems or systems paired with solar PV for residential single and affordable multifamily end-use customers. Stand-alone systems are required to include a HES or HES-IE assessment.<sup>23</sup>

This deployment target will be achieved by providing participants with both an upfront declining incentive block structure (see Table 4)<sup>24</sup> and an annual performance-based incentive over a 10-year period (see Table 5).

Table 4. Residential End-Use Customer Upfront Declining Incentive Block Structure

Incentive Step	Estimated # of Participants	Capacity Block (MW)	Non-LMI Effective Upfront Incentive (\$/kWh)	Underserved Communities Effective Upfront Incentive (\$/kWh)	Low Income Household Effective Upfront Incentive (\$/kWh)
1	1,400	10.0	\$200	\$300	\$400
2	2,800	15.0	\$170	\$255	\$340
3	5,800	25.0	\$130	\$195	\$260
Total	10,000	50.0			

Table 5. Residential End-Use Customer Ongoing Annual Performance-Based Incentive

	Years 1-5		Years 6-10	
	Summer	Winter	Summer	Winter
Maximum Season Incentive (\$/kW)	\$200	\$25	\$115	\$15
Maximum Annual Incentive (\$/kW)	\$225		\$130	

The upfront declining incentive block structure was designed using (1) a willingness to pay storage survey for LMI and non-LMI RSIP participants, (2) benchmarking best-practice battery storage incentive programs in the Northeast (i.e., Massachusetts, New York, and Vermont), and (3) targeting a Participant Cost Test (“PCT”)  $\geq 1.0$ <sup>25</sup>. And the annual performance-based incentive was modelled after the 5-year ConnectedSolutions program in Massachusetts, extended over 10 years.

<sup>23</sup> HES or HES-IE requirement for stand-alone battery storage systems is consistent with the requirement for solar PV systems under CGS 16-245ff and renewable energy systems under CGS 16-244z.

<sup>24</sup> It should be noted that the upfront declining incentive block structure was designed to “plug and play” with the residential renewable energy tariff (CGS 16-244z), including adders for underserved communities (i.e., \$0.01250/kWh) and low-income households (i.e., \$0.0250/kWh).

<sup>25</sup> See “Solarize Storage” cover letter and proposal submitted by the Green Bank to PURA (July 31, 2020)

Residential incentives will observe the following caveats:

- **Incentive Cap** – may not exceed \$7,500 per household;
- **Affordable Multifamily Housing Properties** (a.k.a. affordable housing) – are eligible to receive the Underserved Communities effective upfront incentive, and units within a property (e.g., Property X had 250 units) would be considered as equivalent installations (i.e., 250 installations) with respect to the no less than 40% vulnerable communities target;<sup>26</sup> and
- **Capacity Rights** – as noted by PURA in the Decision, project owners or third-party owners (“TPO’s”) are authorized to retain capacity rights, however, only customers located on circuits deemed by EDCs to qualify as grid edge can monetize these rights in the ISO-New England Forward Capacity Markets. Although the Program Administrators don’t anticipate more than 25% of residential participants, including TPO’s, will monetize capacity rights from their installations, in order to ensure that the ratepayer benefits that the Authority is seeking are achieved (i.e.,  $RIM \geq 1.4$  for the Program), the Program Administrators will ensure that no more than 25% of such installations within the first three-year cycle will be able to monetize capacity rights.

### 2.3. PURA Priorities

In its final decision in Docket No. 17-12-03RE03, PURA identified the following priorities for the Program:

- **Cost-Effective** – achieving a 1.4 RIM from the net present value of the associated benefits and costs (e.g., incentives, administrative expenses, evaluation, measurement and verification (“EM&V”)) for the Program;
- **Vulnerable Communities** – deploying no less than 40 percent of the installations in vulnerable communities; and
- **Resilience** – maximizing the deployment of battery storage to improve the overall resilience of the participants and the grid.

Each of these priorities is further detailed below.

#### 2.1.1 Cost-Effectiveness – Ratepayer Impact Measure

The Ratepayer Impact Measure (“RIM”), from a cost-effectiveness point of view, answers the question – is the program likely to reduce costs to electric ratepayers? A  $RIM < 1.0$  means the program is likely to increase costs to electric ratepayers, while a  $RIM > 1.0$  means the program is likely to decrease costs to electric ratepayers. Given PURA priorities noted above, upfront and ongoing performance-based incentive structure, administrative costs to implement the Program, and EM&V costs to evaluate the Program, the Program has been designed to achieve a RIM for residential end-use customers of approximately 1.26, while achieving a PCT of 0.97 for solar PV paired with battery storage.

<sup>26</sup> Multiunit dwellings that aren’t considered affordable per CGS 16-244z, and thus “residential customers,” shall be deemed non—residential and included within the commercial and industrial incentive structure.

### 2.1.2 Vulnerable Communities

Through the Equitable Modern Grid Framework (i.e., Docket No. 17-12-03), PURA has prioritized the need to improve access to clean, affordable, reliable energy sources for vulnerable communities. PURA has also sought to integrate (e.g., HES or HES-IE requirement) and coordinate various incentive programs (e.g., residential renewable energy tariff adders) to maximize benefits to participants, ratepayers, and society.

With the priority of deploying no less than 40 percent of installations in vulnerable communities, the Program identifies four (4) target segments, including:

- **Underserved Communities** – The Program Administrators will design the Program to ensure that a minimum of 30% of residential participants will reside in an underserved community, or an environmental justice community (i.e., CGS 22a-20a).<sup>27</sup>

There are approximately 424,204 housing units located in distressed communities in 2020 with 202,879 owned and 221,325 rented.

- **Low-Income Households** – The Program Administrators will design the Program to ensure that a minimum of 10% of residential participants will be low-income households (i.e., those that make less than 60 percent of Area Median Income (“AMI”)).<sup>28</sup>

There are approximately 232,116 low-income housing units with 70,514 owned and 161,602 rented.

- **Affordable Multifamily Housing Properties** – participants that reside in affordable multifamily housing properties can receive the underserved communities upfront incentive adder. The number of units within a participating property will be considered the number of installations for the Program.

There are approximately 1,914<sup>29</sup> affordable multifamily housing properties comprising 241,178 units in Connecticut with 40,111 owned and 201,067 rented.

- **Medical Hardship** – those customers designated as low income or underserved community medical hardship customers, will be eligible for the appropriate incentive adder.

If there are 10,000 participants within the 50 MW target, then no less than 4,000 participants should reside in underserved communities, low-income households, units of affordable multifamily housing properties, or be medical hardship customers. Below are maps that highlight where low-income and distressed communities are – see Figures 3 through 5.

<sup>27</sup> (1) United States census block group for which 30 percent or more of the population consists of low-income persons who are not institutionalized and have an income below 200 percent of the federal poverty level, or (2) a distressed municipality as defined in subsection (b) of CGS 32-9p.

<sup>28</sup> See Footnote #15 in final decision under Docket No. 17-12-03RE03 for how “low-income” status shall be automatically verified.

<sup>29</sup> Based on a commercial and industrial sector analysis of the real estate market in CT performed by HR&A Advisors in 2013.

Figure 3. Area Median Income by Census Tract - Low-Income (light blue)

MSA AMI Band -60 60-80 80-100 100-120 120+

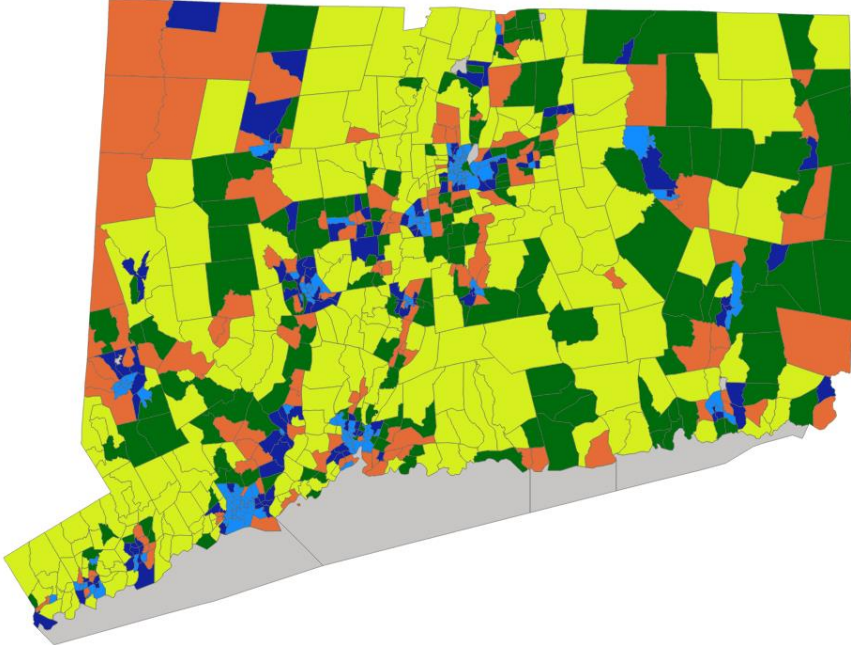


Figure 4. Area Median Income by Census Tract - CRA-Eligible with  $\le 50\%$  AMI (light blue) and 50-80% AMI (dark blue)

MSA CRA AMI Band -50 50-80 80+

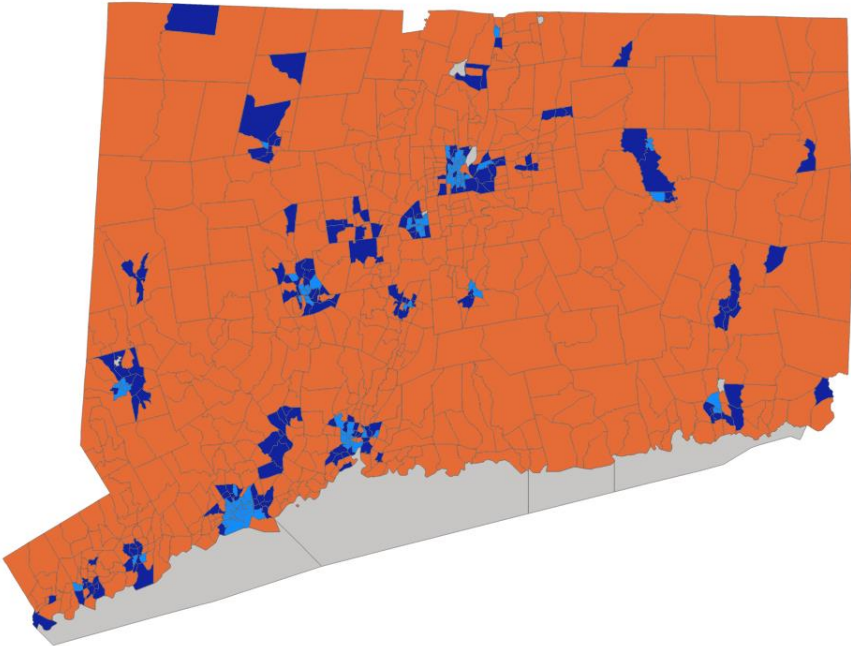
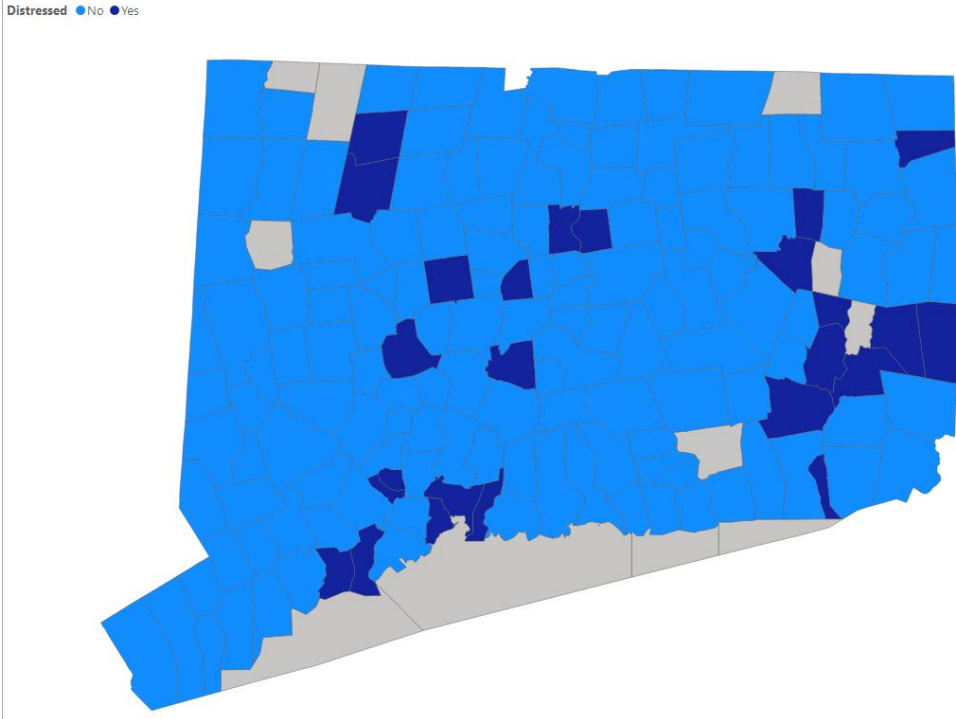




Figure 5. Distressed Communities (dark blue)



2.1.3 Resilience

Given the increasing scientific consensus that climate change is causing an increase in extreme weather events – increased intensity of storms and hurricanes, prevalence of extreme heat (e.g., heat domes) and extreme cold (e.g., polar vortex) events, and increased severity of flooding (e.g., rain bombs) – it is an important PURA priority to continue to improve the resilience of the electricity grid from such events, especially for grid edge and medical hardship customers.

In a survey conducted by Guidehouse for the Green Bank’s “Solarize Storage” submission within the Docket, potential battery storage customers indicated their priority back-up needs for various home devices in the event of an outage – see Table 6.

Table 6. Load (W) of Home Devices by Priority and Duration (Hours and Days) from 13.5 kWh of Back-Up Battery Storage

Home Devices	Priority Devices <sup>30</sup>	Load (W)	Required Outage Support Duration (Hours)	Required Outage Support Duration (Days)
Refrigerator	95%	400	33	1.4
Lights - LED	89%	10	1350	56.3

<sup>30</sup> Battery Storage and Solar PV – Residential Customer Survey (i.e., administered June 24 through July 9, 2020) responses for the question “What are your expectations for the items the electricity stored in the battery storage system would be able to power in your home?”

Lights - Incandescent	89%	100	135	5.6
Laptop	61%	100	135	5.6
Desktop Computer with Monitor	61%	200	67	2.8
Chest Freezer	59%	500	27	1.1
Internet	52%	10	1350	56.3
Cable Box	52%	100	135	5.6
TV - LCD	52%	100	135	5.6
Cell Phone Charger	50%	10	1350	56.3
Electric Water Heater	47%	4500	3	0.1
Central Heating - Gas Furnace Blower Fan	42%	600	22	0.9
Water Pump	42%	700	19	0.8
Microwave	37%	1300	10	0.4
Fans	29%	100	135	5.6
Electric Oven	25%	1800	7	0.3
Electric Stove	25%	1800	7	0.3
Clothes Washer	18%	700	19	0.8
AC - Central	16%	3300	4	0.2
Clothes Dryer	12%	3600	3	0.1
Video Game Console	9%	100	135	5.6
Non-Central HVAC	2%	1400	9	0.4
Sump Pump	1%	700	19	0.8
EV - Level 1 Charging	0%	1800	7	0.3
Ductless Mini Split	N/A	600	22	0.9
Ground Source Heat Pump	N/A	2900	4	0.1
Heat Pump Water Heater	N/A	4500	3	0.1
Well Pump	N/A	700	19	0.8

To discern the length of time a conventional battery storage system would power the home device, Guidehouse determined a reasonable load (i.e., watts) and duration (i.e., hours and days) for such devices. It should be noted that the wattage estimates represent average load when the device is in use, not including startup which may increase load. The instantaneous load may fluctuate based on operational characteristics (e.g., refrigerator cycling).

The findings of the survey and duration research, indicates the following for those with response rates (i.e., priority rates) greater than 50 percent from the survey:

- **Energy Efficiency** – it is important that energy efficient devices (e.g., ENERGY STAR® lightbulbs, heating and cooling, insulation) be a priority area of communication through the Program in order for battery storage to serve more loads and increasing duration. If customers are seeking standalone battery storage systems, then in order to receive the upfront incentive from the Green Bank, they must have scheduled or received an energy assessment through HES, HES-IE, or an equivalent energy audit, per program guidelines, similar to the requirements under the renewable energy tariff. The Green Bank will accept audit reports dated after 2011.
- **Food** – having access to food (i.e., refrigerator, freezer) during an outage is an important priority for potential battery storage customers, however, the battery storage system is limited in terms of the duration it can provide for such priorities. Additional education would be required here, as well as encouragement for ENERGY STAR® appliances.

- **Information Technology** – having access to information and the ability to communicate (i.e., laptop, desktop computer, internet, cable, TV, cell phone) during an outage is also an important area of priority for potential battery storage customers, however, despite relatively longer durations, the number of information technology devices should be prioritized.
- **Temperature** – surprisingly, access to heating and cooling devices (e.g., HVAC, water heater) weren't as much of a priority as food, light, and information technology. As climate change continues to set-in, the Program Administrators would expect that efficient heating and cooling systems (e.g., renewable heating and cooling) and self-reliance devices (e.g., wells for water) will become more important resources for back-up from battery storage in the event of a grid outage.

It is important to note that battery storage systems paired with solar PV, should have the ability to island from the grid, to provide additional resilience (e.g., extending duration battery storage for Home Devices) for residential end-use customers in the event of a grid outage.

### Grid Edge

Customers on the Grid Edge are defined as (1) the top ten percent of circuits with the highest number of outages per customer during major storms since July 1, 2012, and (2) the top ten percent of circuits with the longest outages due to major storms since July 1, 2012. The EDCs shall develop maps of locations that meet the above criteria and will update the final approved maps on an annual basis. These maps will be included in all relevant Program documentation, including on the EDCs' respective Program webpages. Grid Edge customers consistently experience outages that are longer and/or with greater frequency than average customers, positioning this market as prime customers for battery storage.

Within an interrogatory response to Q-CAE-020 from PURA's straw proposal, Eversource provides data identifying which zip codes, on average, have experienced more outages per customer during major storms since July 1, 2012. (Footnote: "Major storm" is defined in the decision in Docket No. 86-12-03, dated September 15, 2016, p.2, as follows: "major storm exclusion criterion [that] is based on a statistical analysis of the most recent four calendar years of reliability data.") According to this data, there are on average 0.218 events per customer, and an average duration of 25 hours per customer.

The top 10 localities with the highest customer outage duration and the highest number of outages per customer are listed below:

1. Stamford
2. Wilton
3. Redding Center
4. West Cornwall
5. Newtown
6. North Branford
7. Georgetown
8. Weston
9. Sherman
10. Cornwall

As the EDCs submit their response to Order 8, the Program Administrators will then create an overlap map of vulnerable communities and grid edge customers to target marketing activity in order to improve resilience for those being impacted by climate change the most.

Given the resilience objectives of PURA within the Docket, these customers will benefit from the additional financial incentives of participating in ISO – New England’s Forward Capacity Markets (“FCM”). However, the Program Administrators anticipate that the Grid Edge customers will prioritize resiliency over the revenues they could receive from participating in the FCM. Therefore, we anticipate these customers may not avail themselves of the opportunity to earn through FCM participation.

For modeling purposes, the Program Administrators have modeled 50% participation as directed by PURA but anticipate less than 25% will participate in FCM. The use case the Program Administrators anticipate as the most likely is paired solar PV with battery storage systems versus standalone to improve participant resilience – see Figures 6 and 7.

Figure 6. BCAs for Solar PV Paired with Battery Storage at 50% (left image) versus 25% (right image) Participation in FCM

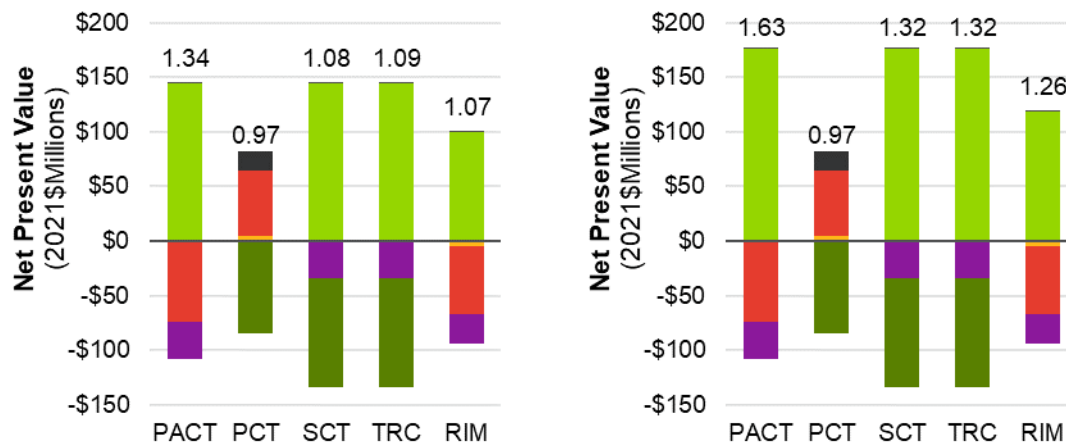
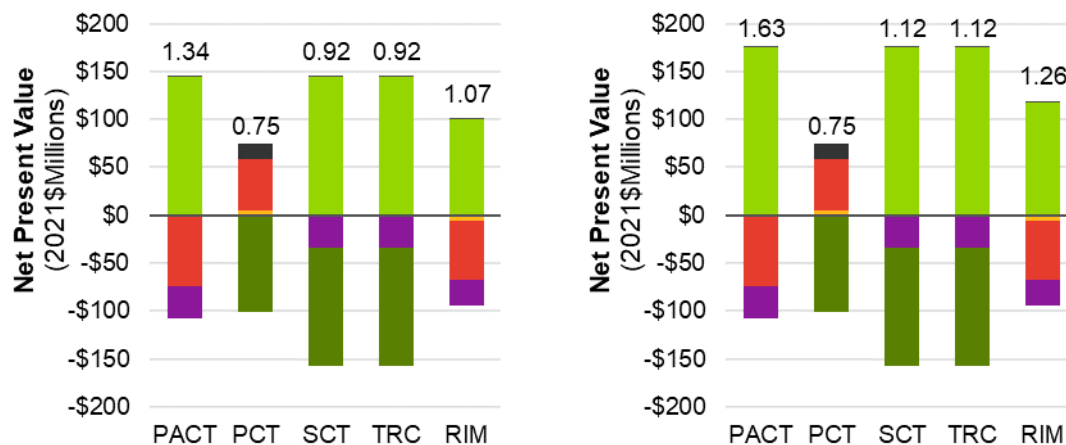


Figure 7. BCAs for Standalone Battery Storage at 50% (left image) versus 25% (right image) Participation in FCM



It should be noted that the Program Administrators estimate that a significant percentage of battery storage systems will be significantly paired with existing (i.e., retrofit) or new (i.e., through renewable energy tariff) solar PV systems, and that no more than 15% of capacity

rights from qualifying projects will be monetized – setting a RIM range between 1.34 to 1.45 for residential end-use customers participating in the Program.

### Medical Hardship

While hospitals and other critical infrastructure are typically fitted with onsite back-up generation for use during blackouts, multiple studies have demonstrated the substantial effect of power disruptions on people with Home Medical Devices (“HMDs”).<sup>31</sup> HMDs, including life support equipment (e.g., machines for dialysis, ventilators, oxygen concentrators, reliance on exceptional temperature stability) and independent living (e.g., electric wheelchairs, mobility scooters), rely upon a stable and resilient supply of electricity. For users of HMDs, interruptions to electricity supply can compromise treatment, well-being, or survival. The consequences of a disruption to supply of electricity for those reliant on HMDs can be harmful or even fatal. As extreme weather trends persist, and power outages become more frequent events, those responsible for the well-being of medically vulnerable communities will need to build on existing resilient power programs and recognize battery storage as essential to emergency preparedness. In doing so, electricity-dependent residents will be able to confidently shelter in place or safely wait for evacuation in the event of severe weather and power outages.<sup>32</sup>

Approximately 2.0% of Eversource (i.e., 22,515) and 2.4% of United Illuminating (i.e., 7,352) residential customers receive medical hardship protection – a total of nearly 30,000 customers.<sup>33</sup> In both cases, nearly 90% of those customers were designated as having life-threatening conditions. Knowing where medical hardship customers are located, especially with respect to grid edge, will enable the Program Administrators to target them with the Program.

The following is a breakdown of various, but not all, HMD’s that should be targeted for battery storage to improve the resilience of medical hardship<sup>34</sup> residential end-use customers – see Table 7.

**Table 7. Load (W) of Home Medical Devices and Duration (Hours and Days) from 13.5 kWh of Back-Up Battery Storage**

Home Medical Device	Load (W)	Duration (Hours)	Duration (Days)
Infusion pump	5	2700	112.5
Feeding tube	10	1350	56.3
Ventilator	40	337	14.0
Lift chair	50	270	11.3
Hospital bed	60	225	9.4
Suction pump	70	192	8.0
Ventilator for life support	70	192	8.0
Heating pad	80	168	7.0
Apnea monitor	90	150	6.3
CPAP machine	90	150	6.3
Air ionizer	100	135	5.6
Dialysis machine	100	135	5.6

<sup>31</sup> “Keeping the Power On to Home Medical Devices” by Richard Bean, Stephen Snow, Mashhuda Glencross, Stephen Viller, and Neil Horrocks (July 9, 2020)

<sup>32</sup> “Home Health Care in the Dark” by Clean Energy Group and Meridian Institute (June 2019)

<sup>33</sup> Docket No. 17-12-03RE01

<sup>34</sup> Eversource guidance is “You may be eligible for medical hardship status if anyone in your home is seriously ill or has a life-threatening situation, and you are facing having your natural gas or electrical service shut off.”

Power Wheelchair	200	67	2.8
Chair lift	300	45	1.9
Nebulizer	300	45	1.9
Oxygen Concentrator	300	45	1.9

The Program Administrators working with the right partners from the health care, insurance, and other industries, will improve the likelihood that battery storage systems reach those residential end-use customers, especially those within the grid edge, providing them with increased resilience for their medical hardship needs through the duration of a grid outage for HMD's.

## Section 3 – Commercial and Industrial Market Opportunity

### 3.1. Commercial and Industrial Market Sizing

There are approximately 160,000 commercial and industrial end-use electricity customers in Connecticut being served by Eversource and United Illuminating, consuming 15,400,000 MWh of electricity and paying over \$2.5 billion in electricity costs per year – see Table 8.<sup>35</sup>

Table 8. Commercial Buildings Over 10,000 Square Feet in Connecticut<sup>36</sup>

Industry	Number of Buildings	Total Square Feet	Average Square Feet
Industrial	5,724	296,664,506	51,828
Medium Retail	2,842	42,448,102	14,936
Medium Office	2,410	51,071,515	21,192
Multi-Family	1,914	128,682,999	67,232
Large Retail	1,505	114,977,671	76,397
Large Office	715	107,852,930	150,843
Hospitality	298	20,733,836	69,577
Health Care	149	17,406,651	116,823
<b>Grand Total</b>	<b>15,557</b>	<b>779,838,210</b>	<b>50,128</b>

#### National Market – Non-Residential Battery Storage Overview

A recent study by LBNL revealed several insights in the non-residential battery storage market:

- **Overwhelmingly Standalone Systems** – the majority of behind the meter commercial battery storage is currently standalone and *not* paired with solar PV. Roughly 40% of battery storage systems are paired with solar PV.<sup>37</sup>
- **Few Paired with Solar PV** – in 2020, 2% of new commercial solar PV installations were paired with battery storage (i.e., a low attachment rate).
- **Self-Consumption Encourages Pairing with Solar PV** – attachment rates are strongest in Hawaii (40%), where pairing storage and solar PV is incentivized by net metering reform which encourages "self-consumption." This is important when considering buy all vs. monthly netting tariff options in Connecticut.
- **Resilience Concerns Increase Pairing with Solar PV** – attachment rates are slightly stronger in California, thanks to incentive structures and resiliency concerns. This is likely to be the case in Connecticut given concerns around the impacts of climate change.

<sup>35</sup> EIA CT 2019

<sup>36</sup> Based on 2013 study Green Bank commissioned from HR&A Advisors.

<sup>37</sup> According to Clean Energy Group webinar on Behind-the-Meter Solar+Storage Market Data and Trends

- **Limited Data beyond Leaders** – outside of Hawaii and California, attachment rates are weak, with the exception of some utilities, and are flat in growth.

The findings of the LBNL report on the national market, raise useful insights into the market for battery storage in Connecticut, especially as it applies to standalone systems and the primary use case of reducing demand charges. With respect to solar PV, and the transition from NEM to a tariff-based compensation structure, and recent climate change related activities increasing awareness of potential customers of the need for more resilience, it is likely that Connecticut will see demand similar to California in terms of those battery storage systems paired with solar PV.

#### Connecticut Market – Commercial Solar PV

The following is a breakdown of the commercial and industrial solar PV market in Connecticut since the inception of the ZREC & LREC incentive in 2013 through 2020. As reported by Eversource Energy and the United Illuminating Company in response to questions regarding Docket No 17-12-03RE09, the following systems have been contracted through these incentive programs:

- **Projects and Installed Capacity** – 2,535 solar PV projects awarded, representing a total contracted installed capacity of 435.5 MW
- **Location with Utility Service Territory** – 432 solar PV projects were awarded in United Illuminating territory and 2,103 in Eversource territory
- **Distribution and Types** – system sizes and projects were as follows – see Table 9:

**Table 9. Distribution of Non-Residential Renewable Energy Projects by Size and EDC**

Program	Number of Eversource Awards	Number of United Illuminating Awards	Total Number of Awards
Small ZREC (up to 100 kW)	1443	270	1713
Medium ZREC (between 100-250 kW)	387	121	508
Large ZREC (between 250-1000 kW)	230	39	269
LREC (up to 2000 kW)	43	2	45

#### Connecticut Market – Non-Residential Small Business Energy Advantage

As of Sept. 7, 2021, there have been 24,663 Small Business Energy Advantage (“SBEA”) projects completed in Connecticut since 2006. Customers participating in SBEA, by definition, are small business customers per the upfront incentive structure.

#### Connecticut Market – Initial Target Customers

Between the 2,535 non-residential solar PV and the 24,663 SBEA projects completed in Connecticut, there is an existing target market for battery storage systems paired with solar PV or standalone battery storage systems of nearly 30,000 commercial and industrial end-use customers.

### **3.2. Deployment Targets and Incentive Structure**



By the end of 2024, there will be no less than 50 MW of behind the meter battery storage deployed for stand-alone systems or systems paired with solar PV for commercial and industrial end-use customers.

This deployment target will be achieved by providing participants with both an upfront declining incentive block structure (see Table 10) and an annual performance-based incentive (see Table 11).

Table 10. Commercial and Industrial End-Use Customer Upfront Declining Incentive Block Structure (2022-2024)

Capacity Block (MW)	Effective Upfront Incentive (\$/kWh)		
	Small Commercial	Large Commercial	Industrial
50.0	\$200	\$175	\$100

Table 11. Commercial and Industrial End-Use Customer Annual Performance-Based Incentive (2022-2024)

	Years 1-5		Years 6-10	
	Summer	Winter	Summer	Winter
Maximum Season Incentive (\$/kW)	\$200	\$25	\$115	\$15
Maximum Annual Incentive (\$/kW)	\$225		\$130	

### 3.3. PURA Priorities

In its final decision in Docket No. 17-12-03RE03, PURA identified the following priorities for the Program:

- **Cost-Effective** – achieving a 1.4 RIM from the net present value of the associated benefits and costs (e.g., incentives, administrative expenses, EM&V) for the Program; and
- **Resilience** – maximizing the deployment of battery storage to improve the overall resilience of the participants and the grid.

Each of these priorities is further detailed below.

#### 3.3.1 Cost-Effectiveness – Ratepayer Impact Measure

The Ratepayer Impact Measure (“RIM”), from a cost-effectiveness point of view, answers the question – is the program likely to reduce costs to electric ratepayers? A RIM<1.0 means the program is likely to increase costs to electric ratepayers, while a RIM>1.0 means the program is likely to decrease costs to electric ratepayers. Given PURA priorities noted above, upfront and ongoing performance-based incentive structure, the administrative costs to implement the Program, and the EM&V costs to evaluate the Program, the Program has been designed to achieve a RIM for commercial and industrial end-use customers of approximately 1.56, while achieving a PCT of 1.04 for solar PV paired with battery storage.

### 3.3.2 Resilience

Through the Equitable Modern Grid Framework (i.e., Docket No. 17-12-03), PURA has prioritized the need to improve access to clean, affordable, reliable energy sources for vulnerable communities.

Given the resilience objectives of PURA within the Docket, four specific populations of commercial and industrial customers will have the opportunity to benefit from the additional revenue stream of ISO-NE FCM participation. These four customer groups are: businesses located in the grid edge, critical facilities, businesses replacing fossil fuel generators, and small businesses. However, the Green Bank anticipates that grid edge businesses, critical facilities, and customers that have fossil fuel generators installed for back-up will likely prioritize resiliency over the revenues they could receive from participating in the FCM. Therefore, we anticipate these customers may not avail themselves of the opportunity to earn through FCM participation.

For modeling purposes, the Green Bank has modeled 50% participation as directed by PURA, however, we anticipate less than 50% FCM participation. The use case the Program Administrators anticipate as the most likely is standalone battery storage systems – see Figures 8 and 9.

Figure 8. BCAs for Solar PV Paired with Battery Storage at 50% (left image) versus 25% (right image) Participation in FCM

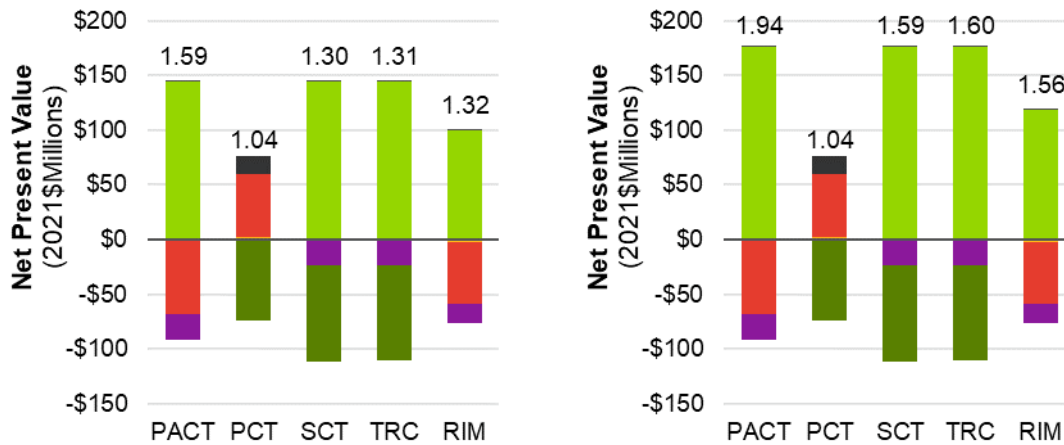
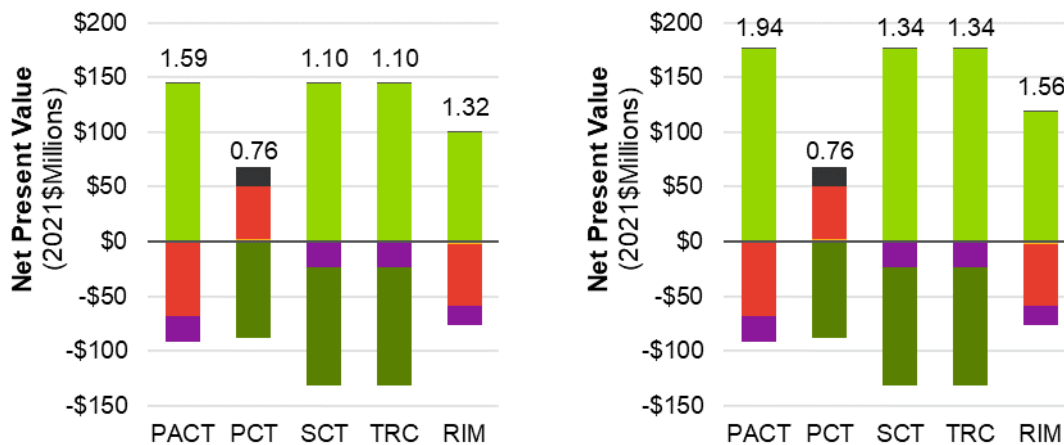


Figure 9. BCAs for Standalone Battery Storage at 50% (left image) versus 25% (right image) Participation in FCM



It should be noted that the Program Administrators estimate that battery storage systems will be significantly paired with existing (i.e., retrofit) or new (i.e., through renewable energy tariff) solar PV systems, and that no more than 25% of capacity rights from qualifying projects will be monetized for commercial and industrial end-use customers.

### Grid Edge

Customers on the Grid Edge are defined as (1) the top ten percent of circuits with the highest number of outages per customer during major storms since July 1, 2012, and (2) the top ten percent of circuits with the longest outages due to major storms since July 1, 2012. These maps will be included in all relevant Program documentation, including on the EDCs' respective Program webpages.

### Critical Facilities

Based on Connecticut General Statutes 16-234y, "Critical facility" means "any hospital, police station, fire station, water treatment plant, sewage treatment plant, public shelter, correctional facility or production and transmission facility of a television or radio station, whether broadcast, cable or satellite, licensed by the Federal Communications Commission, any commercial area of a municipality, a municipal center, as identified by the chief elected official of any municipality, or any other facility or area identified by the Department of Energy and Environmental Protection as critical," as well as known facilities that were designated essential by the DECD pursuant to Governor Lamont's Executive Order 7H.

1,100 critical facilities were left without power after Hurricane Isais in August 2020 and approximately one third of these facilities were without power for more than four days. This left thousands of homes and businesses without the services they depend on. The public health risks and economic damage of such critical facilities being offline is severe, making it vital to improve resiliency at such facilities by providing them incentives to make battery storage a feasible solution.<sup>38</sup> To further incentivize the deployment of battery storage at critical facilities, capacity rights for electric storage projects installed at such facilities can be monetized, however, through the application process, they must submit a Resiliency Plan (using a provided template) to the Green Bank.

### Fossil Fuel Generators

As noted in the PURA decision, many commercial customers have installed fossil fuel generators to manage outage risk. Through the Program, these customers will have the opportunity to preserve their resilience while maximizing the long-term environmental benefits of fossil fuel reduction in favor of greener solutions (i.e. batteries and/or solar+storage). To further incentivize fossil fuel generator users to replace those systems, PURA has determined that C&I customers can request capacity rights for electric storage projects through the application process by submitting a Resiliency Plan (using a provided template) to the Green Bank. This plan will demonstrate how the system would be recharged when grid-charging is unavailable and provide proof that the existing fossil fuel generator will be decommissioned.

### Small Business

A Small Business Customer is defined as a commercial or industrial electric customer with less than a 200-kW peak load. To further incentivize the deployment of battery storage at small businesses, capacity rights for electric storage projects at such businesses can be monetized,

<sup>38</sup> <https://www.ctpost.com/business/article/Hundreds-of-critical-facilities-around-15734607.php>

however, through the application process, they must submit a Resiliency Plan (using a provided template) to the Green Bank. The Green Bank expects that this customer group is most likely to take advantage of the opportunity to participate in the ISO-NE FCM revenue generation opportunity. The Green Bank will assist these customers in making the decision through education.

The Green Bank will create educational materials that will assist these customers in understanding the economics and process of monetizing these in the FCM.

## Section 4 – Marketing Plan

### 4.1 Overview

In Connecticut, solar PV awareness has reached market maturity – potential customers are often already aware of the benefits before they are contacted by installers. However, the battery storage market is still new to many customers. The value and operation of the energy storage systems can be complex and explaining these considerations to potential participants presents a challenge. Achieving the uptake envisioned by this ambitious program, and the ongoing participation in active dispatch events, will require not only marketing, but significant market education to increase awareness of the benefits of onsite energy storage. In addition, the number of installers offering battery storage as a product is not near the number of solar installers.

To support this, the Program Administrators will seek to not just make consumers aware of the program but to educate them on the technology and its uses. They will seek to grow the number of contractors offering storage through education and through working capital loans.

### 4.2. Brand

The Program and the incentives will be managed under a single name/brand. The Green Bank, in consultation with the EDC's, will establish a brand identity that focuses on program benefits as identified by survey respondents (e.g., resilience). The Green Bank initiated this branding exercise in September 2021 and, at the time of filing, are working with the EDC's to finalize a program name.

This unified brand will enable the Program Administrators to market the battery storage incentives through existing channels including websites, social media, public relations, etc. and achieve uptake in the targeted user groups as detailed above. By leveraging existing channels, the Program Administrators will be able to amplify the impact of this marketing by building upon positive past interactions with solar customers. The Green Bank will also work closely with the EDC's to ensure the branding will leverage EDC assets and channels for reaching consumers (e.g., HES and HES-IE, SCEF, renewable energy tariff, SBEA), as well as utilizing shared tools and resources (e.g., Energize CT) to increase awareness and demand.

### 4.3. Communications and Marketing Strategies

Communications regarding the Program will feature the following key elements:

- **Deployment Target** – PURA sets an ambitious target of 580 MW of behind-the-meter battery storage for residential, commercial, and industrial end-use customers by the end of 2030;
- **Ratepayer Benefit** – establishes a RIM target of 1.4, therefore demonstrating that PURA seeks to ensure that ratepayers are benefiting more than they are expending (i.e., the program has a benefit shift not a cost shift) by reducing peak demand and therefore lowering electric rates on all ratepayers;

- **Participant Incentives** – the Program provides a combination of upfront and ongoing performance-based incentives to participating end-use customers through the Green Bank working in collaboration with the electric distribution companies as Program Administrators;
- **Vulnerable Communities** – with a target of no less than 40% of installations in low income, environmental justice communities, and affordable housing, the Program seeks to ensure easy, affordable, and equitable access to battery storage, especially for vulnerable communities (including medical hardship customers);
- **Resilience** – by transferring capacity rights for projects on the grid edge, located in critical facilities and/or small businesses, or displacing existing fossil fuel back-up resources, additional value can be received by monetizing capacity rights in the forward capacity markets, helping to increase resilience for important end-use customers; and
- **Jobs** – the steady growth, development, and successful implementation of the Program, will create jobs in our communities.

Per the PURA final decision, it should be noted that all communications shall clearly convey that the Green Bank and the appropriate EDC are partnering to bring customers the Electric Storage Program overseen by PURA and paid for by ratepayers.

Marketing strategies regarding the Program will include, but are not limited to:

- **Traditional Marketing** – the Program Administrators, led by the Green Bank, will use traditional advertising to increase awareness of the program and to gain participants. We expect to use the following tactics:
  - **Digital Advertising and Search Engine Marketing**– advertisements will be placed with search engines to ensure those searching for specific terms (i.e. solar, battery storage, resilience, storm preparation, storm safety, power outages, back-up generators, etc.) are presented with links to program information.
  - **Social Media** – The Program Administrators will promote the program through organic posts and potentially paid social opportunities, highlighting customer success stories, providing updates, and leveraging the educational and marketing content developed (discussed below). The Green Bank will evaluate and potentially leverage paid opportunities to promote this online content. The Green Bank will look for influencers on social media that can help promote the program to their audiences, often in conjunction with the outreach campaigns mentioned below.
  - **Public Relations** – The Program Administrators, working with the Authority and PR consultants, will issue regular press releases through the Green Bank that keep the public up to date on the activity of the program and will look for other opportunities to promote the program in the media. The Green Bank will evaluate opportunities for native advertising for the program (such as sponsored content on the web or in other media).

- **Email Marketing** – similar to the direct mail approach for homeowners, the Green Bank, working in collaboration with the EDCs, will engage commercial system owners and residential customers via email marketing campaigns. The Green Bank will work with the EDC's to obtain contact information for the system owners/building owners where we are unaware of the information (e.g., SBEA, ZREC-LREC, HES, HES-IE). The Green Bank will also collaborate with the EDC's on a residential email campaign that leverages Green Bank and EDC customer lists to increase program awareness. The Green Bank, with the support of the EDC's, will use email marketing campaigns for those members of the public who contact the Green Bank or the EDCs online or through other means and express interest in storage (both residential and non-residential customers).
- **Direct Mail** – the Green Bank views the existing RSIP participants as the primary group of residential customers for initial 3-year period of the program. The Green Bank will engage with these homeowners, with an emphasis on target customers (e.g., low-income, small business), through direct mail pieces that inform and educate them about storage and the program. The Green Bank also expects to work with the Program Administrators to include billing inserts with customer bills, where appropriate (e.g., low-income, small business) and efficient, as a way to acquire new participants.
- **Marketing with Other Product and Program Offerings** – the Green Bank and EDCs regularly market their existing programs (e.g., Green Bank marketing along product lines such as home solutions, community solutions, or building solutions). The Program Administrators will market the battery storage program with their other products especially where they complement one another (e.g., Energize CT Smart-E Loan for Battery Storage or Heat Loan at home).
- **Outreach** – As the Green Bank saw in the early days of solar, and as has been referenced in the Solarize Storage proposal, community- and affinity-based outreach campaigns are an effective way of educating the public about a new technology and growing overall deployment. We intend to rely on these types of campaigns as battery storage gains traction in the market.
  - **Externally Driven Campaigns** – Professor Ken Gillingham of Yale and his SEEDs project will be sponsoring several campaigns a year to study the co-adoption of solar and storage. The Program Administrators will not select the communities involved in the campaigns, but the focus will be customers who both have and do not yet have existing solar systems installed. The Program Administrators expect to endorse or co-brand these campaigns as requested by the project and work with the project team to ensure that participating communities have easy access to the program and to educational resources developed by the Program Administrators. The Green Bank will leverage findings from these campaigns to improve storage marketing and messaging techniques.
  - **Program Sponsored Campaigns** – The Program Administrators, led by the Green Bank, expect to sponsor targeted outreach campaigns led by external parties that focus on a specific geography or affinity group (e.g., Solar for All successfully targeted low-income neighborhoods). The Green Bank envisions using these campaigns to reach the priority groups established by PURA. The

Green Bank expects to work with community partners to both identify and to engage with potential customers. This outreach is discussed below in terms of specific marketing channels.

- **Market Development** – The Program Administrators recognize the nascent stage of the battery storage market. We intend to focus on the following as ways to support and grow the market that will bolster the other marketing efforts undertaken:
  - **Education** – The Program Administrators expect to develop assets that help clarify the functionality, usage, and economics of battery storage that will support the growth of the program. These will be in video, written, and digital formats and leveraged by the outreach campaigns.
  - **Demonstration Projects** – Having projects that draw attention of communities is an important asset in the marketing of the program. These projects spread the word in the community and grow public interest in the technology. The Program Administrators will seek out projects that are highly visible that can function as working advertisements for the program. Of particular interest are the technical high schools in the state. By seeking out projects at these locations, we can help engage students and hopefully grow the numbers of qualified electricians in the state, who will be needed to meet the program’s targets. Projects installed at critical municipal facilities will also be a focus.

In addition, the Program Administrators will seek out projects that will hasten our progress along the experience curve and impart lessons with regard to battery deployment. The administrators’ role in these projects is expected to be greater in that we will seek them out and provide technical assistance to see them through (see below). The Green Bank will engage school media outlets to help draw attention and will leverage content developed at such events in other promotions.

- **Working Capital Loans** – the Green Bank will consider offering working capital loans to existing solar installers and energy efficiency vendors, with a focus on women and minority-owned businesses, to help them grow their businesses and transition from offering just solar and energy efficiency to solar+storage and efficiency+storage. The Green Bank could look to reduce interest on the loans if the installers are achieving certain priority (e.g., vulnerable communities) or deployment targets.
- **Program Website** – The Green Bank will develop and maintain a website for the program (a URL of the program name will be registered and will redirect to the page on the Green Bank’s site). This site will contain program information and educational information on battery storage. The website will also eventually contain the ordered landing page for program data. Pursuant to the order by the authority, the EDC’s will have pages on their websites promoting the program that will also redirect to the main program page. The content of the sites will be reviewed on a regular basis to ensure that they are in sync.

With a PURA decision approving Order 9, the Green Bank will focus on a press release announcing the launch of the Program – see Attachment A.



#### 4.4. Market Channels

The following is an overview of the various market channels the Program will pursue:

##### 4.4.1 Contractors

Contractors represent the primary means of bringing new projects to the program. The Program Administrators are very familiar with this dynamic as most of their programs benefit from contractor engagement. The Green Bank has recently expanded its contractor outreach on an organizational level. The Program Administrators will maintain a list of battery storage contractors and support them as the storage industry matures, ensuring that over the course of the program contractors feel confident in their ability to understand and sell the technology as well as facilitating their access to incentives and financing. In terms of building and retaining our contractor base, the Program Administrators will focus on the following:

- **Technology Training** – the Program Administrators will gauge interest in what level of training is needed from the contractors regarding battery technologies and the availability of installers to install the different battery types. The Program Administrators will, if needed, facilitate training on the various battery companies' products with the manufacturers.
  - **Program Training** – the Program Administrators will offer regular training on the program for new contractors and their sales staff. This will focus on how to walk building owners and homeowners through the program specifics and the economics of battery storage.
  - **Contractor Outreach** –The Program Administrators will conduct direct outreach to contractors, such as through individual one on one meetings or (as conditions permit) in person events, webinars, etc. Especially, the Green Bank will:
    - Engage with contractors who have already deployed battery storage under the Residential Solar Investment Program (RSIP).
    - Engage with contractors already working with the Green Bank through its financing programs (including C-PACE, the Green Bank Solar PPA, and Smart-E Loan programs).
    - Solicit new contractors to participate in the battery incentive program, especially women and minority-owned businesses, through advertisement of the program and by working with trade groups, suppliers, and other connectors to reach new contractor audiences.
- **Contractor Trade Groups** – The Green Bank will conduct outreach to Energy Storage Association, Solar CT, REEBA, NECEC (and other contractor trade groups) to identify ways in which the Program Administrators can provide support to their membership regarding the battery program (e.g., trainings, informational meetings, advertising the program through trade group communications).
- **Targeted Communities** – The Program Administrators will seek out contractors working with the communities and populations that are part of the communities that are PURA's

priority. For example, the Green Bank will seek out contractors who are doing business in distressed communities as a way to increase deployment in LMI communities.

Beyond the contractor community, the Green Bank anticipates that there will be organizations interested in participating in the Program as Third-Party Owners (“TPOs”). The Program Administrators will work with these organizations to support their engagement with customers to offer alternate ownership models. TPOs will offer battery energy storage to customers through a Lease or Power Purchase Agreement (PPA) either standalone or combined with solar PV.

At least four Solar PV TPOs with a strong local presence have already begun offering solar+storage PPAs and lease agreements to Connecticut customers. The Program Administrators expect these TPOs to increase marketing to prospective storage customers (including new and existing solar PV customers) with the launch of **[Name of Program]**.

#### 4.4.2 Community-Based Organizations and other partners (i.e., Campaigns)

Community-based organizations will be key to the outreach efforts of the organization. These affinity-based organizations allow the program administrators to directly target a specific population. While this list will certainly evolve, the Program Administrators will partner with the following organizations to reach specific populations:

- **SustainableCT** – Sustainable CT is a voluntary certification program that recognizes thriving and resilient Connecticut municipalities. Their mission is to foster inclusive, resilient, and vibrant Connecticut municipalities that provide opportunities for all to thrive by: providing a menu of sustainability actions that build local economies, support equity, and respect the finite capacity of the environment; offering technical assistance to help advance sustainability initiatives; and recognizing and certifying municipalities for their achievements. The Green Bank has worked closely with Sustainable CT since its inception to advance our respective missions (e.g., launching community-based “Solar for All” campaigns, deploying Solar MAP). Through this partnership, we will increase awareness of the technology and the battery program to municipal leaders and volunteers. We will also work together to encourage towns to sponsor their own solarize+storage campaigns to reach residents.
- **Local Government Associations** – Between the Council of Governments (COGs), Connecticut Conference of Municipalities (CCM), Council of Small Towns (COST), and others, the Program Administrators will build on these relationships to help educate their members on the program and the technology. This will help bolster the work done leveraging existing municipal relationships discussed below.
- **Environmental Organizations** – The Green Bank will reach out to the Peoples’ Action for Clean Energy, Clean Water Action, Sierra Club, Save the Sound, Sunrise Movement, and other local environmental groups. The members of these groups have an interest in climate change and educating their members on the new program will help us potentially find some early adopters.
- **Business Groups** – The Program Administrators will reach out to business and manufacturing groups in state, such as Connecticut Business and Industry Association (CBIA), ManufactureCT, Connecticut Manufacturers Resource Group (CTmrg), and

Chambers of Commerce, to enlist their support for the program and help us communicate the value proposition to their members.

- **Healthcare Partners** – The Green Bank will work with Access Health CT (the state’s quasi-public agency charged with operating its health insurance exchange) and, if appropriate, the state’s Department of Social Services, to target low income, as well as existing and potential medical hardship customers. We will work with these types of organizations on messaging the benefits to the patients, their medical providers, and social workers. Once we hone messaging, we will roll this out to local health departments and health systems where providers and social workers can help inform patients of the offering.

#### *4.4.3 Electric Distribution Companies*

The Electric Distributions Companies are a channel through which we expect to attract participants in the program. As we mentioned earlier, we expect to reach out to homeowners through bill inserts, as available, and we expect that the EDC’s will market this program to their customer base similar to others they sponsor, including of the Energize CT energy efficiency programs. In terms of residential and commercial customers, we expect the EDC’s relationship managers to promote battery storage as a solution that will work with other existing offerings such as HES, HES-IE, and the SBEA/BEA.

In addition to promoting the program, the EDC’s will facilitate the Green Bank’s outreach to specific existing customer groups. As set forth in other program filings, the Program Administrators expect a high degree of transparency and data sharing for program operations. This will also extend to marketing. The EDC’s will provide the Green Bank with contact information for existing commercial customers who are also fossil fuel generators or are critical facilities. Further, they will help the Green Bank identify the communities that are grid-edge communities.

Due to the desire to safeguard personal information, the Green Bank will rely on the EDC’s to directly reach out to existing and new medical hardship customers. The Green Bank will rely on the EDC’s for verifying customer reported information with regard to medical hardship.

The EDC’s operate the Energize CT initiative and it receives regular inquiries regarding energy savings and renewables. For inquiries regarding storage, the Green Bank will provide a script for both calls and email that will direct such inquiries about new installations to the Green Bank.

#### *4.4.4 Technology Providers*

The Program Administrators will seek to engage with battery manufacturers. The Program Administrators recognize that there are direct sales from them to end use customers, and that they should continuously be made aware of the Program. The Program Administrators will work with them to help grow the overall installer base.

#### *4.4.5 Municipalities and the State of Connecticut*

The Green Bank launched its successful Solar Marketplace Assistance Program (Solar MAP) in 2020 to help shepherd municipalities looking to install solar. The Green Bank will reach out to the municipalities that have already participated in the program and see if we can retrofit their

systems with battery storage. The Green Bank will also seek to include battery storage with new systems installed in the future.

The Green Bank has been working with the State of Connecticut to further the progress made under Executive Order 1 and has signed power purchase agreements with the State for several locations. The Green Bank will work with the hosts of the existing projects and those in the pipeline to add battery storage, especially those that are critical facilities.

#### 4.5. Financing

By providing residential, commercial, and industrial end-use customers with easy and affordable access to capital to finance battery storage systems, the Program is in a better position to efficiently and effectively achieve its targets and objectives. At the present time, federal incentives for battery storage (investment tax credit (ITC) and accelerated depreciation) are only attainable by combining such systems with the installation of solar PV (and according to IRS guidance, installation of the battery storage portion of the project should be completed within one year of the installation of solar PV). While Congress is considering a “standalone” battery storage incentive (for ITC and depreciation), there can be no assurance that this legislative effort will be successful. Without such standalone incentives, nearly all systems would need to be paired with solar PV and, in the main, a vast majority of these systems are “third-party owned” (or “TPO”). Consequently, while the Green Bank will be prepared with financing offerings for standalone acquisitions of battery storage (or for installations that are paired after the fact and outside of IRS guidance so as to make such installations ineligible for federal ITC and depreciation incentives) our first line of funding is likely to be for TPO battery storage systems. The result will be for the Green Bank to offer financing facilities to TPOs that will facilitate deployment of battery storage systems at rates that will achieve PURA’s targets for the program.

##### 4.5.1 Residential End-Use Customers

Between the upfront declining incentive block structure and the ongoing performance-based incentives, there is significant value to participating residential end-use customers for a typical battery storage system<sup>39</sup> – see Tables 12 through 14.

**Table 12. Nominal Value of the Upfront Declining Incentive Block Structure for a Typical Residential Battery Storage System**

Incentive Step	Non-LMI Effective Upfront Incentive	Underserved Communities Effective Upfront Incentive	Low Income Household Effective Upfront Incentive
1	\$2,700	\$4,050	\$5,400
2	\$2,295	\$3,443	\$4,590
3	\$1,755	\$2,633	\$3,510

<sup>39</sup> 5 kW and 13.5 kWh

**Table 13. Nominal Value and Present Value of Ongoing Performance Based Incentive for a Typical Residential Battery Storage System**

	<b>Years 1-5</b>	<b>Years 6-10</b>	<b>Total</b>
Maximum Annual Incentive	\$1,125	\$650	-
Maximum Nominal Value	\$5,625	\$3,250	\$8,875
Maximum Present Value <sup>40</sup>	\$5,152	\$2,568	\$7,720

For typical residential end-use customers participating in the Program, whose systems are paired with solar PV, the present value of incentives, prior to any value from the federal investment tax credit, is the following – see Table 14.

**Table 14. Present Value of Upfront and Ongoing Performance-Based Incentives by Participant and by Step**

<b>Incentive Step</b>	<b>Non-LMI Incentives</b>	<b>Underserved Communities Incentives</b>	<b>Low Income Household Incentives</b>
1	\$10,420	\$11,770	\$13,120
2	\$10,015	\$11,162	\$12,310
3	\$9,475	\$10,352	\$11,230

It should be noted that the federal ITC value will apply to the installed costs after the upfront incentive and before the performance-based incentive for retrofit systems paired with solar PV. As noted above, for standalone battery storage systems, the federal ITC doesn't currently apply.

As identified within the Green Bank survey,<sup>41</sup> financing is an important component to enabling participation:

- **No Money Down** – 57% of survey respondents felt that no money down was “very important”;
- **Incentives** – 59% of survey respondents felt that payments that are covered by the benefits from the additional performance-based incentives was “very important”;
- **Low Monthly Payments** – 64% of survey respondents felt low monthly payments was “very important”; and
- **Low Interest Rate** – 80% of survey respondents felt a low interest rate was “very important”.

Within the final decision of the Docket, PURA determined that “direct payment” is a component of financing to provide increased access to affordable capital by requiring the EDCs to partially or wholly direct upfront and performance-based incentives to a third-party (e.g., loan, lease, or PPA provider) with the authorization of the participating customer. Direct payment is an integral component of the Program, enabling the financing of such systems.

<sup>40</sup> Discount rate of 3%

<sup>41</sup> “Solarize Storage” proposal submitted by the Connecticut Green Bank on July 31, 2020 (page 205)

The following financing programs will be made available by the Green Bank to support residential end-use customers within the Program:<sup>42</sup>

- **Smart-E Loan** – through the unsecured loan program offered by local community banks and credit unions, all participating residential end-use customers would have easy and affordable access to capital to finance standalone battery storage systems in or paired with solar PV on their homes (consideration will be given to interest rate buydowns to support PURA priorities, for example, low-income and medical hardship customers). Approaching lenders to get engaged in “direct payment” should have an impact on interest rates or improve other terms for the Smart-E Loan program;
- **Low Income Multifamily Energy (“LIME”) Loan** – through a partnership with Capital for Change (“C4C”), a Community Development Financial Institution (“CDFI”), the Green Bank provides funding for a variety of energy efficiency or clean energy improvements, and Green Bank will work with C4C to have the LIME Loan program provide loans for battery storage systems paired with solar PV located in vulnerable communities.
- **Green Bank Solar PPA** – to support the deployment of battery storage systems paired with solar PV located in vulnerable communities, the Green Bank will offer its Solar PPA for affordable multifamily properties; and
- **Green Bank Capital Solutions** – through an ongoing open RFP, the Green Bank is willing to provide third-party financiers with access to low-cost capital to support the deployment of battery storage systems to vulnerable communities only (i.e., low-income households, underserved communities, affordable multifamily properties, and medical hardship customers).
  - Multi-round battery loan auction where Green Bank offers discrete sized loans above a floor interest rate. Prospective borrowers would bid on these loans by offering the highest interest rate they would be willing to pay. The Green Bank would then decide on an auction basis which bids for Green Bank capital would be issued/eligible for loans. Bidders would be required to direct performance based incentives to the Green Bank to support repayment.

To support women and minority-owned battery storage installation businesses, while fostering the sustained orderly development of a local battery storage industry, the Green Bank may consider providing a working capital loan guarantee to a local community bank or credit union to support the growth of these important small businesses.

It should be emphasized that the Green Bank encourages an open and competitive market for financing. The Green Bank’s products and programs are intended to “fill the gaps” and complement the market by focusing its efforts on vulnerable communities and resilience.

Providing potential applicants with easy and affordable access to capital to finance battery storage systems will be important in order to break through the upfront cost barrier.

#### *4.5.2 Commercial and Industrial End-Use Customers*

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<sup>42</sup> The Green Bank makes financing available through the use of the Clean Energy Fund and RGGI allowance proceeds

Between the upfront declining incentive block structure and the ongoing performance-based incentives, there is significant value to participating commercial and industrial end-use customers – see Tables 15 and 16. The typical small commercial, large commercial, and industrial end-use customers used within the BCA modelling are 10, 250, and 1,000 kW in capacity, respectively, and 27, 675, and 2,700 kWh in energy, respectively.

Table 15. Nominal Value of the Upfront Incentive for a Typical Commercial or Industrial Battery Storage System

Effective Upfront Incentive		
Small Commercial	Large Commercial	Industrial
\$5,400	\$118,125	\$270,000

Table 16. Nominal Value and Present Value of Ongoing Performance Based Incentive for a Typical Commercial or Industrial Battery Storage System

	Small Commercial	Large Commercial	Industrial
Maximum Annual Incentive Years 1-5	\$2,250	\$56,250	\$225,000
Incentive Years 6-10 (\$/kW)	\$1,300	\$32,500	\$130,000
Maximum Nominal Value	\$17,750	\$443,750	\$1,775,000
Maximum Present Value <sup>43</sup>	\$11,589	\$289,730	\$1,158,918

For the typical small commercial, large commercial, and industrial end use customers, the present value of incentives is \$23,150, \$561,875, and \$2,045,000 respectively.

Within the final decision of the Docket, PURA determined that “direct payment” is a component of financing to provide increased access to affordable capital by requiring the EDCs to partially or wholly direct upfront and performance-based incentives to a third-party (e.g., loan, lease, or PPA financier) with the authorization of the participating customer.

The following financing programs will be made available by the Green Bank to support the Program:<sup>44</sup>

- **C-PACE** – through the benefit assessment financing program, all participating commercial and industrial end-use customers would have easy access to affordable capital to finance standalone battery storage systems in or paired with solar PV on their buildings (consideration will be given to interest rate buydowns to support PURA priorities, for example, small business customers);
- **Small Business Energy Advantage (SBEA)** – through the SBEA Program administered on-bill financing program offered by the EDCs, through the C&LM programs, small commercial end-use customers would have access to low-cost financing for standalone battery storage systems in or paired with solar PV on their buildings ;small commercial end-use customers access 0% loans up to 4 years and repay these loans “on-bill” for qualifying measures under the C&LMP programs. Green

<sup>43</sup> 10% discount rate

<sup>44</sup> The Green Bank makes financing available through the use of the Clean Energy Fund and RGGI allowance proceeds

Bank will work with the EDCs to determine the feasibility for small commercial end-use customers to access the SBEA program for standalone battery storage systems in or paired with solar PV on their buildings;

- **Green Bank Solar PPA** – to support the deployment of battery storage systems paired with solar PV, the Green Bank will offer its Solar PPA to underserved market segments (e.g., nonprofits, municipalities, non-AAA credit end-use customers); and
- **Green Bank Capital Solutions** – through an ongoing open RFP, the Green Bank is willing to provide third-party financiers with access to low-cost capital to support the deployment of battery storage systems to support resilience only (i.e., grid edge, critical facilities, replace fossil fuel generators, and small business).
  - Multi-round battery loan auction where Green Bank offers discrete sized loans above a floor interest rate. Prospective borrowers would bid on these loans by offering the highest interest rate they would be willing to pay. The Green Bank would then decide on an auction basis which bids for Green Bank capital would be issued/eligible for loans. Bidders would be required to direct performance based incentives to the Green Bank to support repayment.

To support women and minority-owned battery storage installation businesses, while fostering the sustained orderly development of a local battery storage industry, the Green Bank may consider providing a working capital loan guarantee to a local community bank or credit union to support the growth of these important small businesses.

It should be emphasized that the Green Bank encourages an open and competitive market for financing. The Green Bank's products and programs are intended to "fill the gaps" and complement the market by focusing its efforts on vulnerable communities and resilience.

Providing potential applicants with easy and affordable access to capital to finance battery storage systems will be important in order to break through the upfront cost barrier, as well as provide equitable access to the market.

#### *4.5.3 Direct Payment*

Direct payment as an element of financing programs, will improve affordability and access to financing for battery storage systems for vulnerable communities by enabling third parties (e.g., TPO's, loan or lease providers) to receive a portion or all of the upfront and/or ongoing performance-based incentives from an installation directly from the EDCs. As noted in the PURA decision "For consistency across clean energy programs, specifically the Residential and Non-Residential Tariffs Programs authorized in Docket No 20-07-01, PURA Implementation of Section 3 of Public Act 19-35, Renewable Energy Tariffs and Procurement Plans, each incentive may be provided as a direct payment, with customers afforded the option to assign a portion of the compensation to a third party."<sup>45</sup> The allowance of direct payment within the

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<sup>45</sup> The Program Administrators shall include any direct payment parameters (e.g., payment frequency, etc.) and process (e.g., specify during the application process) in the Program Design Documents submitted for the Authority's review and approval. Such direct payment parameters and process shall follow the Decisions issued February 10 and June 30, 2021 in Docket No. 20-07-01.



Program reduces risk associated with the credit quality of the host for the battery storage system.

#### 4.5.4 Bond Financing

For the Green Bank to manage cash flow from being a co-administrator of the Program, and providing access to capital to support financing programs, the Green Bank may raise funds through the issuance of short-term notes or longer-term bonds.

- **Green Liberty Notes** – in partnership with a funding platform with access to raise capital under the Jobs Act regulations, the Green Bank may issue smaller denomination (e.g., as low as \$100) short-term (e.g., no more than 3 years) notes that can be purchased by retail customers to provide capital to support the implementation of the upfront incentive aspects of the Program; and
- **Green Liberty Bonds**<sup>46</sup> – the Green Bank may issue small denomination (i.e., \$1,000), longer-term (i.e., up to 20 years), investment-grade rated bonds that can be purchased by retail customers to provide capital to support the implementation of the financing programs to support the Program.

By engaging everyday citizens in Connecticut and across the U.S. as retail purchasers of notes and bonds, the Green Bank will not only raise funds to support its capital needs to implement the Program, but it will also activate more and more supporters and participants in the Program.

#### 4.6. Workforce Development

As stated earlier in this plan, contractors are the primary means of bringing new projects to completion. In order to enhance and grow the program, technology and programmatic trainings were noted, however, workforce development is also needed to supply new workers into the battery storage deployment field. In the 2021 Connecticut Clean Energy Industry Report, of clean energy firms that were hiring in 2020, 92 percent indicated some level of hiring difficulty, with 45 percent reporting that hiring that had been very difficult.<sup>47</sup>

To help encourage workers to join this industry, the Program Administrators will work with the Connecticut Technical Education and Career System (CTECS) and associated programs (such as Green STEP (Sustainability Technical Education Program), an Energize CT collaborative) to encourage students to pursue work in the battery storage field.

The Program Administrators will also connect with the Connecticut Workforce Development Unit, which is part of the Department of Economic and Community Development (DECD), to grow the workforce pipeline. Other outreach channels, such as CBIA (Ready CT) and the Connecticut Roundtable on Climate and Jobs, will also be explored.

#### 4.7. Technical Assistance

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<sup>46</sup> [www.greenlibertybonds.com](http://www.greenlibertybonds.com)

<sup>47</sup> 2021 Clean Energy Industry Report (forthcoming)

In order to achieve PURA’s vulnerable communities and resilience priorities, specifically for difficult to deploy end-use customer segments (e.g., affordable multifamily properties), the Green Bank will seek to partner with various organizations to provide technical assistance to property owners, for example:

- **Clean Energy Group** – the Clean Energy Group (“CEG”) has gained years of experience working with affordable housing providers to understand, explore, and implement resilient solar+storage projects, resulting in some of the first affordable housing solar+storage projects in the country. CEG has provided more than 250 affordable housing and community-serving facilities across the country, with technical assistance including solar+storage economic analysis, system optimization, and other predevelopment needs. CEG has awarded more than 90 technical assistance grants totaling nearly \$1million to advance resilient solar+storage in underserved communities.

CEG could provide technical assistance, program implementation support, and re-grants of funding for feasibility assessments to develop solar+storage in multifamily affordable housing. CEG would raise funds from foundations to match technical assistance funds made available through the Program.

- **Lawrence Berkeley National Laboratory** – given the expertise of LBNL on the battery storage market in general, and research focus on the level of back-up power protection from battery storage combined with solar PV for residential customers specifically, seeking their ongoing technical assistance to better understand how consumer willingness to pay for resiliency and their expectations for home devices to back-up in the event of a grid outage, payout in terms of actual system performance will be important. For example, knowing how many days standalone battery storage, or paired with solar PV, can provide residential customers with power will be important (i.e., loads, durations).

The Green Bank will seek their technical assistance on these sorts of matters.

#### 4.8. Marketing Partners

In order to achieve PURA’s deployment targets for residential, commercial, and industrial end-use customers, the Green Bank will seek to partner with various organizations to provide marketing assistance, for example:

- **Yale University** – Continuing the successful community-based marketing campaign called Solarize, Yale University, in collaboration with New York University, SmartPower, and others, has competed for and been awarded funding from the DOE’s Solar Energy Technologies Office (“SETO”) to run field experiments focused on co-adoption of solar and energy storage looking at residential energy behavior and the value of each technology, as well as the interaction when electric vehicles are also present.<sup>48</sup> The project will not only uncover key insights into the co-adoption process of solar and battery storage, but it will also directly lead to the deployment of solar and battery storage through field experiments (i.e., Solarize Storage).

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<sup>48</sup> Proposal submitted by Yale University to SETO called “Patterns and Value of Co-Adoption of Solar and Related Technologies (Control Number: 2243-2130)s

Yale will develop and execute a municipality-level field experiment on solar and energy storage in Connecticut to quantify the value of the combined technologies.

- **Operation Fuel** – Operation Fuel provides year-round emergency energy assistance for low- to moderate-income households and people with chronic medical conditions keep their homes warm or cool, keep the lights on, keep power to medical equipment, and other vital services. By looking at a complete home performance solution (e.g., weatherization, renewable heating and cooling, solar PV, battery storage), in conjunction with financing (including direct payment based on the performance of such systems), Operation Fuel can be a frontline resource to help identify low-income and underserved communities, to participate in the Program – to improve their resiliency, while reducing the burden of energy costs.

Operation Fuel will provide assistance in generating leads, including customer acquisition, to support the Program in reaching its 40% vulnerable communities target with a focus on single-family homeowners or renters.

- **Access Health CT** – Access Health CT is Connecticut’s official health insurance marketplace, established to meet the requirements of the federal Affordable Care Act. Their mission is to increase the number of Connecticut residents who are insured, retain their current members, lower their costs, promote health, and eliminate health inequities. Working through 1,600 local partners in Connecticut, Access Health CT supports Medicaid, which provides healthcare coverage to eligible low-income adults, children, elderly, people with disabilities, and others. With an objective of reducing health disparities and inequities, Access Health CT could help the Program reach both low-income and medical hardship customers through its outreach efforts.

Through a pilot program, the Green Bank will work with Access Health CT, working in collaboration with a local, federally qualified, community health center(s), to develop strategies to increase access to the Program for low-income and medical hardship ratepayers.

#### 4.9. State Resources

The Green Bank will partner with other state agencies to amplify the impact of project deployment through partnerships such as:

- **Department of Economic and Community Development** – by working with DECD’s Small Business Express program, and their workforce development programs, we will be able to leverage existing state-entity partnerships to deliver value to small business customers.
- **Department of Emergency Services and Public Protection** – The Green Bank will ensure that they are aware of the program and seek their assistance in identifying additional critical facilities if the Department feels such exist.
- **Department of Energy and Environmental Protection** – The Green Bank will work with DEEP to maximize the impact of public funding for resiliency programs, ensuring that customers in climate-risk communities are aware of the resiliency benefits available from this storage Program.

- **Department of Social Services** – The Green Bank will work with DSS to engage community health centers as a way of reaching LMI and medical hardship customers.
- **Department of Insurance** – The Green Bank will work with the Department of Insurance to identify opportunities for increasing resiliency investments (e.g., in reducing insurance premiums).

The Green Bank will continuously identify opportunities to work with the State of Connecticut to advance the market for battery storage.

#### 4.10. Federal Resources

The United State Government (“USG”) is on the verge of passing a \$1.2 trillion bipartisan infrastructure bill (i.e., Infrastructure Investment and Jobs Act), that if passed, will provide not only opportunities for formula grants to Connecticut, but also competitive opportunities as well.

The Program Administrators anticipate that there will be opportunities to compete for and attract funding from the USG to Connecticut in the following areas:

- **Energy Efficiency Revolving Loan Fund Capitalization Grant Program** – established as part of the State Energy Program (“SEP”), \$250 MM for FY22 may be available for capitalization grants to state energy offices (i.e., 40% of funds distributed by SEP formula and 60% of funds allocated to the 15 states with the highest per-capita residential and/or commercial sector energy consumption or energy-related carbon emissions) for commercial and residential energy efficiency.
- **Energy Efficiency and Conservation Block Grant Program** – \$550 MM may be available (i.e., 28% of funds distributed by SEP formula), including modification in existing statutory language (i.e., 42 USC 6322(d)(5) to make it easier for financing programs.
- **Grid Infrastructure, Resilience, and Reliability** – \$5 B for FY22-FY26 may be available for DOE to establish a grant program to establish activities to reduce the likelihood, consequences of, and impacts to the electric grid due to extreme weather and natural disaster, with up to 50% of funding going via DOE formula (i.e., not SEP formula).
- **Upgrading Our Electric Grid and Ensuring Reliability and Resiliency** – \$5 B for FY22-FY26 may be available for states, tribes, PUCs and local government for transmission, storage, and distribution hardening and regional grid resilience.
- **Deployment of Technologies for Grid Flexibility** - \$3 B may be available for amending the Energy Independence and Security Act of 2007 to include Smart Grid investments, including a Smart Grid Investment Matching Grant Program.
- **Battery Recycling Grants** – \$60 MM may be available for battery recycling research, development, and demonstration programs with \$50 MM for state and local programs.

- **Clean Energy Supply Chains** – \$50 MM for FY22-FY26 may be available for state and local programs for battery collection, recycling, and reprocessing.

More recently, the DOE and its national labs have issued competitive technical assistance opportunities, including:

- **Communities Local Energy Action Program (“LEAP”) Pilot** – the Green Bank will seek to identify and support an organization to submit an application into the pilot program in order to build local capacity through technical assistance to help low-income, energy-burdened communities experiencing direct environmental justice impacts; and
- **Energy Storage for Social Equity (“ES4SE)** – in support of the DOE Office of Electricity Energy Storage Program, the Green Bank will seek to identify and support an organization to submit an application into the technical assistance program designed to offer a range of assessments on energy storage feasibility, design, and application to enhance community benefits.

Beyond the bipartisan infrastructure bill, the Democrats are proposing a \$3.5 trillion budget that would increase USG investment in state and local efforts to combat climate change through reconciliation. If such a budget is passed, there will be even greater resources available from the USG for Connecticut to tap for its Equitable Modern Grid efforts, and specifically for battery storage programs.<sup>49</sup>

It should be noted that given PURA priorities (e.g., vulnerable communities, resilience), that Connecticut will be well-positioned to compete in future USG competitive RFP’s, and that the Program Administrators expect to coordinate and collaborate on competing in such RFP’s for the benefit of Connecticut electric ratepayers. The Green Bank has set aside a modest budget within the Marketing Plan for the Program, to be able to submit as part of a state match contribution into a federal grant proposal. Such set aside would only be used if a federal submission were successful.

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<sup>49</sup> For example, the Clean Energy and Sustainability Accelerator (a.k.a. National Green Bank or US Climate Bank), modelled after the Connecticut Green Bank could provide between \$20-\$100 billion of low-cost and long-term capital to states for financing projects that confront climate change.

## Section 5 – Other Considerations for the Future

There are a number of other considerations to develop and support, including, but not limited to:

- **Electric Vehicle to Grid** – as noted by PURA in the final decision, the Green Bank is directed, in collaboration with the EDCs as appropriate, to propose Program modifications that will enable the Electric Storage Program to better complement or otherwise support the managed charging programs authorized by the Authority in the EV Decision under Docket No. 17-12-03RE04. Such proposal shall be submitted to later than August 1, 2022 for consideration in the 2022 Annual Review for potential adoption in Year 2 (i.e., 2023). The Green Bank will stay on top of vehicle to grid opportunities, including fleet electrification. For example, many municipalities are currently considering electric school buses which can be used as ridership assets during the school day, but storage assets outside of school hours.
- **Flexible Storage** – to fully realize the true value of storage to the grid, storage should be reimagined to have both active discharging *and* active charging – serving both as flexible generation (as envisioned by this docket) and as flexible load. Flexible storage paired with an active network management system would allow the storage systems deployed through this program to mitigate local hosting capacity constraints and further enable DER interconnection, maximizing electric distribution system utilization.

Using storage in this way would benefit all ratepayers by delaying or avoiding distribution system upgrade costs. Additionally, using these systems as flexible load could increase community resilience – potentially allowing areas of the distribution grid to island and remain energized during planned or storm-caused outages.

- **Interconnection Standards** – for modeling purposes, the Green Bank has assumed 100% of systems installed as part of this Program will be interconnected with the ability to export power to the electric grid. If interconnecting these systems requires distribution system upgrades to integrate, customers may opt to interconnect under a ‘no-export’ contract. The EM&V vendor will track export capability and the impact on ratepayer benefits. If a significant percentage of customers face interconnection upgrade costs, the Program Administrators may investigate a standard interconnection protocol for these systems that allow for EDCs to address hosting capacity constraints rather than upgrading distribution infrastructure. Future BCA’s might take these benefits into account when assessing the overall incentive structure of the Program. Docket No. 17-12-03RE06 (Interconnection Standards and Practices) may also impact interconnection upgrade standards.
- **Stand Alone vs. PV-Paired Systems** – for modeling purposes, the Green Bank has assumed 100% of systems installed as part of this Program are stand-alone (not paired with solar PV systems). As detailed in this document, the Green Bank anticipates that solar customers are the likely first movers for storage adoption. If a significant percentage of Program customers are also solar PV customers, the BCA will be positively impacted. Furthermore, the modeling effort has assumed an 80/20 storage adoption split between Eversource and UI territory. Current install rates suggest that UI customers tend to adopt solar & storage systems at a slightly higher rate – likely due to demographic factors. The EM&V vendor will track and improve predictions regarding co-adoption rates by service territory and the impact of these rates on ratepayer benefits.

Future BCA's might take these benefits into account when assessing the overall incentive structure of the Program.

- **Declining Passive Dispatch** – for modeling purposes, the Green Bank has assumed 100% of systems installed as part of this Program will choose to participate in passive dispatch in return for the upfront incentive. In the future, it is possible that the design of the program may allow customers that wish to maximize the resiliency value of their storage systems or are permitted to participate in FCM and choose to maximize the financial returns of their systems could be allowed to decline the upfront incentive and passive default setting. The Program Administrators will monitor this future possibility and the EM&V vendor will track and improve predictions regarding passive default settings and their impact on ratepayer benefits participation. Future BCA's might take these benefits into account when assessing the overall incentive structure of the Program.
- **Medical Hardship & Grid Edge Customers** – while it is not currently modeled as part of our calculations, both Medical Hardship and Grid Edge customers require support in excess of an average Connecticut electric customer. The costs to support these customers are socialized across all ratepayers. As these participants enroll in the Program, we can expect their cost of service to decrease, lowering costs to all ratepayers. Future BCA's might take these benefits into account when assessing the overall incentive structure of the Program.

## Section 6 – Definitions

The following are important definitions for the Program, especially those where CGS apply to ensure definitional consistency with other public policies (e.g., SCEF, renewable energy tariffs), and associated PURA dockets (i.e., 19-07-01, 20-07-01 respectively):

- **Active Dispatch** – participants are automatically opted-in to active dispatch program administered by the EDCs. The EDCs pay participant or TPO based on performance during called active dispatch events throughout the year. All electric storage systems participating in the Program must enroll in and communicate with the active dispatch aspect of the program. However, systems that are authorized to participate in the ISO-NE Forward Capacity Market (FCM) to monetize capacity rights may be eligible for the upfront incentive but may be unable to respond to an active dispatch event due to ISO-NE obligations.
- **Affordable Housing** – as defined per CGS 8-39a, means “housing for which persons and families pay thirty per cent or less of their annual income, where such income is less than or equal to the area median income for the municipality in which such housing is located, as determined by the United States Department of Housing and Urban Development,” as well as defined per CGS 16-244z(b), means “a multifamily dwelling consisting of two to four units, or a multifamily dwelling consisting of five or more units, provided in the case of a multifamily dwelling consisting of five or more units, (i) not less than sixty percent of the units of the multifamily dwelling are occupied by persons and families with income that is not more than sixty percent of the area median income for the municipality in which it is located, as determined by the United States Department of Housing and Urban Development, or (ii) such multifamily dwelling is determined to be affordable housing by the Public Utilities Regulatory Authority in consultation with the Department of Energy and Environmental Protection, Department of Housing, Connecticut Green Bank, Connecticut Housing Finance Authority and United States Department of Housing and urban Development.
- **Attachment Rate** – the rate at which battery storage is attached to solar PV
- **Capacity Rights** – specific Program participants (grid edge customers, critical facilities, C&I customers with fossil fuel generators, small business customers) can request ISO-NE FCM capacity rights as an incentive adder and can be permitted to both retain and monetize a project’s capacity rights.
- **Critical Facility** – as defined per CGS 16-243y(a)(2), means “any hospital, police station, fire station, water treatment plant, sewage treatment plant, public shelter, correctional facility or production and transmission facility of a television or radio station, whether broadcast, cable or satellite, licensed by the Federal Communications Commission, any commercial area of a municipality, a municipal center, as identified by the chief elected official of any municipality, or any other facility or area identified by the Department of Energy and Environmental Protection as critical,” as well as known facilities that were designated essential by the DECD pursuant to Governor Lamont’s Executive Order 7H.



- **Default Settings** (a.k.a. passive dispatch) – in order to receive an upfront incentive, the default setting on battery storage systems will allow for passive dispatch of the systems. All participants are required to provide an affidavit or equivalent asserting compliance with the passive dispatch settings except: during emergency events, as determined by the Program Administrators and/or participant; during active dispatch events as determined by the relevant EDC; and to meet any ISO-NE or other obligations.
- **Direct Payment** – to support financing of battery storage systems, the Participant may direct a portion or all of the upfront incentives and/or ongoing performance incentives directly from the Green Bank and/or EDCs to a third-party. The Program Administrators shall include any direct payment parameters (e.g., payment frequency, etc.) and process (e.g., specify during the application process) in the Program Design Documents submitted.
- **Duration** – the length of time battery storage systems are expected to last when the grid is down given the loads of the devices being served on the property
- **Environmental Justice Community** – as defined per CGS 22a-20a, means “(A) a United States census block group, as determined in accordance with the most recent United States census, for which thirty per cent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred per cent of the federal poverty level, or (B) a distressed municipality, as defined in subsection (b) of section 32-9p.”
- **Forward Capacity Markets** – ISO-NE market used to ensure future electric demand is met for the New England power system. Storage systems deployed in this program in specific customer classes (as detailed in this Plan) will be eligible to participate in Forward Capacity Auctions, which are held annually, three years in advance of the operating period.
- **Grid Edge** - Customers on the Grid Edge are defined as (1) the top ten percent of circuits with the highest number of outages per customer during major storms since July 1, 2012, and (2) the top ten percent of circuits with the longest outages due to major storms since July 1, 2012.
- **Load** – the amount of energy required by a device.
- **Low-Income Customer** – as defined per CGS 16-244z(a)(7)(B), means “an in-state retail end-user of an electric distribution company (i) whose income does not exceed eighty percent of the area median income as defined by the United States Department of Housing and Urban Development, adjusted for family size, or (ii) that is an affordable housing facility as defined in CGS 8-39a.”

It should be noted, that PURA determined low income as not exceeding sixty percent of area median income as opposed to eighty percent in Docket No. 17-12-03RE03. Participants must demonstrate need through various mechanisms.<sup>50</sup>

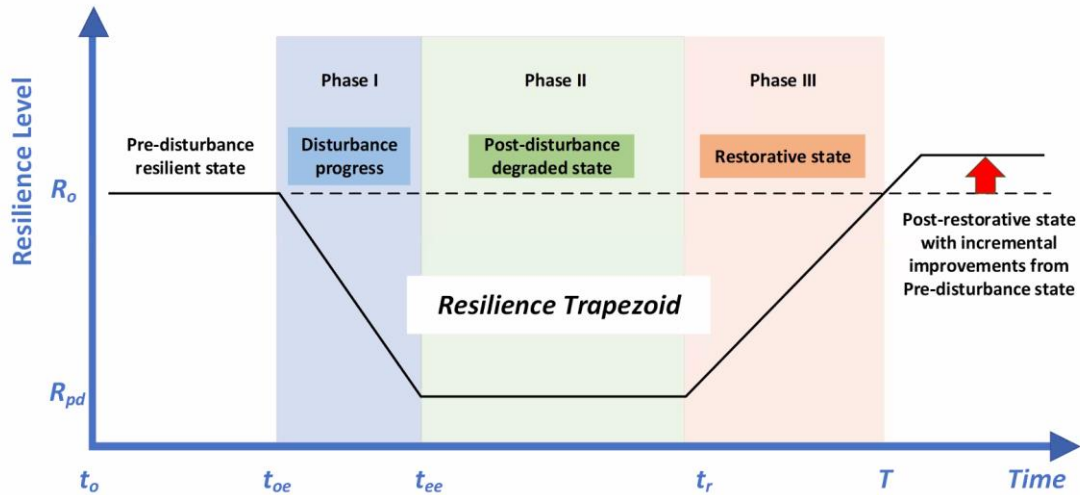
- **Medical Hardship Customers** – nearly 30,000 customers in Connecticut that rely on Home Medical Devices for their survival (see Table 5). Customers may be eligible for medical hardship status if anyone in the household is seriously ill or has a life-threatening situation.
- **Performance-Based Incentive** – an ongoing incentive to system owners based on production and performance of the active dispatch of the system.
- **Program Administrators** – the Program Administrators are: the electric distribution companies (EDCs) - The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) and The United Illuminating Company (UI) ; and the Connecticut Green Bank.
- **Ratepayer Impact Measure** (RIM) – One of five tests designed to evaluate the cost-effectiveness of a program. RIM specifically looks at the cost implications to utility ratepayers, answering the question of whether utility rates will increase due to a program’s administration and execution.
- **Resilience** – the ability to withstand and reduce the magnitude and/or duration of disruptive events (e.g., power outage), which includes the capability to anticipate, absorb, adapt to, and/or recover from such an event (see Figure 10)

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<sup>50</sup> The Green Bank may use the following, as appropriate, to automatically verify eligibility under the 60 percent of state median income criteria for the incentive adder: (1) designated financial hardship by the EDC; (2) receiving Connecticut Energy Assistance Program (CEAP) benefits or otherwise participating in the EDCs’ Matching Payment Plan; (3) enrolled in Eversource’s New Start Program or UI’s Matching Payment Plan (MaPP); (4) has participated in or been income-verified by the Home Energy Solutions – Income Eligible (HES-IE) program in the last three years; or (5) has been verified by the CGB, an EDC, Operation Fuel, or other community partner through another program. The CGB may use other methods to automatically verify eligibility including, but not limited to participation in existing social service programs such as the Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), and State-Administered General Assistance (SAGA). In the event that the CGB identifies a customer as eligible for hardship designation pursuant to Conn. Gen. Stat. § 16-262c(b)(3)(B), the CGB should direct the customer to the appropriate EDC verification process.

Per CGS 16-262c(b)(3)(B), “hardship case” includes, but is not limited to: (i) A customer receiving local, state or federal public assistance; (ii) a customer whose sole source of financial support is Social Security, Veterans’ Administration or unemployment compensation benefits; (iii) a customer who is head of the household and is unemployed, and the household income is less than three hundred per cent of the poverty level determined by the federal government; (iv) a customer who is seriously ill or who has a household member who is seriously ill; (v) a customer whose income falls below one hundred twenty-five per cent of the poverty level determined by the federal government; and (vi) a customer whose circumstances threaten a deprivation of food and the necessities of life for himself or dependent children if payment of a delinquent bill is required.

Figure 10. Resilience Framework for the Electricity Sector



- **Resiliency Plan** – template document within the application process in which the customer must demonstrate how their system will be recharged when grid-charging is otherwise unavailable for projects installed at critical facilities, replacing fossil fuel generators, or small business customers.
- **Small Business Customers** – means a commercial or industrial electric customer with less than a 200-kW peak load. For Eversource, this definition aligns with Rate 30 and Rate 35, which are available to commercial and industrial customers with maximum demand less than 200 kW. For UI, the customers on Rates GS, GST, and LPT could be segmented by peak demand to verify eligibility.
- **Underserved Communities** – as defined as (1) United States census block group for which 30 percent or more of the population consists of low-income persons who are not institutionalized and have an income below 200 percent of the federal poverty level, or (2) a distressed municipality as defined in subsection (b) of CGS 32-9p.
- **Upfront Incentive** – an incentive provided to a consumer to reduce the installed costs of a battery system, making it more affordable on the front end.
- **Vulnerable Communities** – communities most at risk due to climate change, including low income and environmental justice communities.

## Attachment A – Sample PURA Launch Press Release

12/01/2021

Connecticut Launches Statewide Battery Storage Program – Green Bank and Utilities to Jointly Administer Incentives to Improve Resilience and Benefit Ratepayers

*Customer Incentives Available Jan. 1, 2022, Additional Incentives for Underserved Communities and Customers Hardest Hit by Severe Weather*

**(New Britain, CT – December 1, 2021)** – Connecticut’s Public Utilities Regulatory Authority (PURA) launches [Name of the Program], a statewide electric storage program for all residential, commercial, and industrial customers in an effort to foster a more reliable and resilient electric distribution system, especially for vulnerable communities.

Average upfront incentives for residential customers will initially be around \$200 per kilowatt-hour (kWh), with a maximum per project incentive of \$7,500. Commercial and industrial customers will also be eligible for upfront incentives, with a maximum incentive of 50% of the project cost. Residential, commercial, and industrial customers will all be eligible for performance incentive payments based on the average power an electric storage project contributes to the grid during critical periods.

Additional incentives will be available for those who would most benefit from additional resilience measures, such as low-income customers, customers in underserved communities, small businesses, and customers who historically experience the most frequent and longest duration storm-related outages.

[Name of the Program] will be administered by the Connecticut Green Bank, along with Eversource and UI. The Connecticut Green Bank, Eversource, and UI will implement the nine-year program starting January 1, 2022, and continuing through at least December 31, 2030.

Development of the [Name of the Program] was informed by objectives outlined in [Public Act \(PA\) 21-53](#), which establishes a statewide goal of deploying 1,000MW of energy storage by year-end 2030. Governor Ned Lamont signed the legislation into

law in June, making Connecticut the eighth U.S. state to issue an energy storage deployment target.

“Public Act 21-53 put Connecticut on the map as a potential leader in realizing the benefits of energy storage. The launch of [Name of the Program] builds on that vision by establishing a statewide comprehensive program that not only incorporates different applications and types of electric storage, but ensures the state is on a path to achieving 1,000 MW by 2030,” said **PURA Chairman Marissa P. Gillett**. “The Green Bank, working in collaboration with the utilities, will help ensure that our families and businesses, especially those within vulnerable communities, access the important benefits that electric storage provides in terms of resilience and modernizing the grid.”

“I want to thank Chairman Gillett and the PURA team, as well as the Legislature for their leadership and recognition of the vital role storage will play in a truly equitable, decentralized, decarbonized, and modernized grid,” states **Governor Ned Lamont**. “Continuing to build our state economy requires that we recognize that climate change is here, and we need to enable investment to both reduce greenhouse gas emissions and make us more resilient to its impacts.”

“With the launch of [Name of the Program], Connecticut is on the path towards a zero-carbon clean energy system supporting our nation’s goals to reduce greenhouse gas emissions,” states [leading federal voice]. “By enabling the investment in and the deployment of battery storage through public-private partnerships, we can create jobs while improving the resilience of our most vulnerable communities to confronting climate change.”

The Green Bank, Eversource Energy, and United Illuminating are partnering to bring customers [Name of the Program] overseen by PURA and paid for by electric ratepayers.

# Memo

**To:** Connecticut Green Bank Board of Directors  
**From:** Mackey Dykes (Vice President, Financing Programs)  
**Date:** December 10, 2021  
**Re:** Small Business Energy Advantage Master Agreement Extension

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Nearly three years ago, the Green Bank formed a partnership with Amalgamed Bank and Eversource to provide capital for Eversource's Small Business Energy Advantage (SBEA) program. This program offers energy audits, incentives and financing to eligible small business, municipalities, and state agencies for energy efficiency projects. The partnership provides capital for the financing aspect of the program, which offers on-bill, 0% financing for up to 4 years (with terms up to 7 years available for state agencies). The intent was to both reduce the cost of capital for the program as well as expand the availability of capital.

The partnership has been a success in both areas. Amalgamed Bank and Green Bank have purchased over \$72 million of loans, representing over 5,700 projects. With a rate of 2.33% for the last purchase of loans from Eversource, the capital is significantly cheaper than the rate of between 9% and 10% that the program was paying for Eversource shareholder capital. Eversource has also been able to expand the amount of capital that municipalities and state agencies can access through the program as well as making more businesses eligible for financing through expanding the offering to the Business Advantage Program (BEA).

The current master agreement is scheduled to expire on December 20, 2021. The parties have been in negotiation for several months to extend and expand the capital facility. The intent is to make several changes to the facility that will further increase customer access to financing for energy efficiency projects as well as improve the Green Bank's position, including:

- Expand the maximum term from 4 to 7 years for all customers
- Remove municipality aggregate loan cap of \$1 million
- Expand the Green Bank's share of the loans from 10% to 20%

However, closing on the new terms is expected to surpass the December 20<sup>th</sup> expiration of the master agreement. Staff is requesting the authority to expand the agreement under the existing terms for up to six months. Among other things, the agreement governs the servicing of the loans by Eversource. Both Green Bank and Amalgamed want to keep the agreement active to maintain that servicing as well as to purchase additional loans as may be requested by Eversource.

Staff anticipates new terms as discussed above will be set in early 2022. Staff will return to the Board of Directors for approval of those terms for a three-year extension of the partnership.

## **Resolution**

**WHEREAS**, the successful Connecticut Green Bank (Green Bank), Eversource Energy and Amalgamated Bank Small Business Energy Advantage (SBEA) financing facility, pursuant to that certain Second Amended and Restated Master Purchase and Servicing Agreement dated September 30, 2020 (“MPA”), will expire on December 20, 2021;

**WHEREAS**, the parties expect to agree to terms to extend and expand the MPA in early 2022; and

**WHEREAS**, a short-term extension of the MPA is necessary to maintain loan servicing and additional loan purchases until final terms are reached

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors authorizes the Green Bank to extend the MPA under the existing terms for up to six months; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and negotiate and deliver all other documents and instruments as they shall deem necessary and desirable to effect the above-mentioned legal instruments.

# Memo

**To:** Board of Directors, Connecticut Green Bank

**From:** Louise Della Pesca, Consultant, Clean Energy Finance and Bert Hunter, EVP & CIO

**CC:** Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Jane Murphy, EVP Finance and Administration

**Date:** December 10, 2021

**Re:** Skyview facility amendment to increase commitment and enable energy storage debt financing

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## Introduction

In 2020, Connecticut Green Bank (“CGB”) arranged a senior secured term loan facility (“Term Loan Facility”) to finance the development, longer term financing and refinancing of solar PV projects owned by a special purpose vehicle of Skyview Ventures LLC (“Skyview SPV”). After multiple amendments approved by the CGB Board of Directors (the “Board”), the Term Loan Facility commitment now stands at \$7 million. 35 projects, deploying \$4.9M of the commitment, have been financed to date. This memorandum makes a request for the Board to approve an amendment to the Term Loan Facility documentation to (1) increase the commitment to \$10 million; (2) enable financing of energy storage solutions (“ESS”) projects in Connecticut, with a focus on vulnerable communities (e.g., distressed municipalities) and resilience (e.g., grid edge, critical facilities, displacing fossil fuel generators, small businesses); and (3) enable Skyview SPV to reborrow such amounts until the expiration of the availability period for new projects so long as the commitment as increased is not breached. At its meeting held November 17, 2021 the CGB Deployment Committee passed a resolution that recommended Board approval of the amendment to the Term Loan Facility.

## Background

Since its approval in March of 2020, the existing Term Loan Facility with Skyview SPV has expanded from \$2.3M to \$7M. Through nine separate advances, CGB has deployed \$4.9M against 35 solar facilities, representing a total of 3.5MW capacity. 70% of the facility has been deployed in approximately 18 months and Skyview SPV has a healthy pipeline of projects in development. As of October month end, approximately \$4.6M is outstanding under the facility, i.e., ~\$300k has already been repaid.



The most recent memorandum to the Board concerning the Term Loan Facility, dated June 2021, is included as Appendix 2.

In July 2021, the Public Utilities Regulatory Authority issued a Final Decision in Docket No. 17-12-03RE03 establishing a statewide electric storage program (herein referred to as “Energy Storage Solutions” or the “Program”). The Program launches January 1, 2022 and through its Marketing Plan, is designed to encourage the deployment of ESS, such as lithium-ion batteries, in CT through the use of upfront and long-term performance-based financial incentives. Consequently, Skyview SPV is now developing approximately [REDACTED] ESS projects in Connecticut. The ESS projects would be located at sites where Skyview SPV owns solar PV projects that CGB has financed under the Term Loan Facility. CGB has the opportunity to finance Skyview SPV’s ESS projects and thereby contribute to the important state goal of energy storage deployment.

Figure 1 is an indicative structure that Skyview SPV seeks to use in monetizing ESS projects.

Fig.1

[REDACTED]

### Amendment to Term Loan Facility documentation

An amendment to the Term Loan Facility is required to allow for financing Skyview SPV’s ESS projects. A term sheet (Appendix 1) details the structure of the amended Term Loan Facility. Specifically regarding the ESS financing, key terms are:

- \$2.5M out of an amended total facility size of \$10M carved out for financing ESS projects
- Two advances per ESS project: first to be repaid by the upfront incentive received under the Program (plus accrued interest at [REDACTED]), second to be repaid over a 10-year term (coterminous with life of ESS project)
- Interest rate for second advance will be dependent on the credit profile of the ESS project off-taker and will be pegged to the interest rate for solar PV financing under the facility, with a discount [REDACTED] to account for the shorter term length (10 years for ESS projects vs. 15-20 years for solar PV projects).

The debt service coverage ratio and advance rate terms of the facility will be unchanged at 1.30x and <75% respectively.

Skyview SPV intends to participate in the Energy Storage Solutions Program. This is an important diligence point for CGB because the Program itself will have parameters that enhance the ‘bankability’ of ESS projects. For example, to participate in the Program, the ESS project must, among other requirements:

- Use commercially available technology
- Use equipment that has 10-year warranties including manufacturer warranties on maintaining battery power capacity for 10 years
- Adhere to all applicable building, structural and local codes
- Have a design that is reviewed and approved by the electric distribution company during the interconnection application process.

CGB will conduct further diligence on ESS projects and reserves the right in the loan documentation to not finance any project that does not meet its diligence requirements, including but not limited to:

- CGB review and approval of the major contracts associated with the ESS projects (\*)
- Use of 'tier 1' equipment in the construction of the projects
- CGB review and approval of operations and maintenance contracted program

(\*) For example, the ESS Program allows for the direct payment of performance-based incentives partially or wholly to third-parties. Green Bank, as part of its security package, will arrange for a security interest in these payments similar to the security interest Green Bank obtains with respect to ZREC payments.

### Ratepayer Payback

*How much clean energy is being produced (i.e. kWh over the projects' lifetime) from the project versus the dollars of ratepayer funds at risk?*

Under the amended Term Loan Facility, the portfolio of financed assets would consist of solar PV and ESS projects. The solar PV projects produce clean energy but the ESS projects do not but to maintain their federal tax benefits (ITC and accelerated depreciation) are expected to be recharged using solely energy from the solar PV systems and not the grid.

The total portfolio of solar PV projects is expected to produce 113,000,000 kWh of energy, over a 20-year period, and the amended Term Loan Facility is up to \$10.0M. The kWh / \$ ratepayer funds at risk is forecast to be 11.3.

### Capital Extended

*How much of the ratepayer and other capital that Green Bank manages is being expended on the project?*

The amended Term Loan Facility will not exceed \$10.0M in outstanding principal as of the end of the availability period, however due to principal repayments during the availability period, actual advances may exceed \$10 million somewhat.

### Strategic Selection

This transaction falls within the parameters of a strategic selection, subject to Board approval, for the reasons outlined below.

- **Special Capabilities** – Skyview, the parent company of Skyview SPV, has over a decade of experience in developing, owning, and operating commercial solar PV assets. Specifically, it has experience in the Connecticut market and, with its wholly owned development subsidiaries, is vertically integrated unlike its industry peers. The ESS industry is more nascent than solar, but Skyview’s strategy to pair ESS with existing solar PV projects that it owns leverages its project experience.
- **Uniqueness** – While the Term Loan Facility is very similar to transactions previously entered into by CGB, it differs because (a) the majority of the Projects that will secure the Term Loan are already operational, (b) the Projects were not developed by CGB itself, and (c) the Term Loan Facility will be partly used to finance ESS projects, which is a first for CGB;
- **Strategic Importance** – The Term Loan Facility represents a continuation of a business relationship with a counterparty that CGB has successfully and smoothly transacted with in the past and is likely to transact with in future. For example, CGB continues to develop commercial solar PPA projects with underserved off-takers and Skyview has a track record of purchasing such projects from CGB and has expressed an interest in doing so in future. Further, by providing the Term Loan Facility to Skyview that includes ESS financing, CGB is setting a precedent and defining a process for future similar transactions that can provide a source of investment income to support the long-term sustainability of the organization;
- **Urgency and Timeliness** – CGB seeks to deploy capital in mission-driven transactions with appropriate levels of risk and return. This transaction meets this criteria and Skyview has expressed the desire to close quickly as it ramps up development of ESS projects; and
- **Multiphase Project** - Successful amendment of the Term Loan Facility would represent a follow-on transaction from the existing facility which has been successful to date (financing 35 solar PPA projects so far) and branches out into a new technology (ESS).

## Recommendation

In conclusion, staff requests that the Board to approve an amendment to the Term Loan Facility as a strategic selection to allow for the opportunity to finance Skyview SPV’s energy storage solutions projects.

## Resolutions

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) has significant experience in the development and financing of commercial solar power purchase agreement (“PPA”) projects in Connecticut;

**WHEREAS**, the Green Bank Board of Directors (the “Board”) approved at its meeting held on March 25, 2020 a senior secured loan facility (“Original Term Loan”) transaction with a Skyview Ventures special purpose vehicle (“Skyview”) in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Original Term Loan transaction. The Original Term Loan was first expanded to \$3.5M, and then to \$7M (the (Existing Term Loan”), as approved by the Board at its meetings on April 24 and October 23, 2020, respectively;

**WHEREAS**, as of November 2021, approximately 70% of the Existing Term Loan commitment has been advanced to finance PPA projects;

**WHEREAS**, in light of the financial incentives available (starting 2022) for the deployment of energy storage solutions (“ESS”) projects, Skyview is developing a pipeline of ESS projects in CT; and

**WHEREAS**, given the rate of utilization of the Existing Term Loan by Skyview for Skyview PPA projects, and the opportunity to develop ESS projects, following diligence of Green Bank staff, Green Bank staff proposes increasing the Existing Term Loan size and amending its terms to allow for ESS project financing, and requests Board approval.

WHEREAS, the Green Bank Deployment Committee recommended that the Board approve of the staff’s request to amend and restate the Board’s existing approval of the Existing Term Loan transaction as described in the Project Qualification Memo submitted by the staff to the Deployment Committee and dated November 12, 2021 (the “Deployment Committee Memorandum”)

**NOW**, therefore be it:

**RESOLVED**, that the Board approves staff’s request to amend and restate the Board’s existing approval of the Existing Term Loan transaction as described in the “Deployment Committee Memorandum and consistent with the memorandum to the Board dated December 10, 2021 (the “Memorandum”) to include ESS projects to be qualified for future advances within the increased limit of \$10,000,000 on terms and conditions substantially consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Existing Term Loan transaction.

Submitted by: Louise Della Pesca, Consultant, Clean Energy Finance and Bert Hunter, EVP & CIO



## Appendix 1: Term Sheet to Expand the Size and Remit of the Term Loan with Skyview SPV

### **Indicative Summary of Terms and Conditions Skyview Pequonnock, LLC Expansion of Senior Secured Loan Facility to \$10,000,000 to Include Energy Storage Solution Financing**

November 3, 2021

*For Discussion Purposes Only – Confidential – This is Not a Commitment*

*This Indicative Summary of Terms and Conditions or Preliminary Term Sheet describes certain of the principal terms and conditions of the proposed line of credit described below, is for discussion purposes only and is not to be construed in any way as a commitment or undertaking of CEFIA Holdings LLC, or any of its subsidiaries or affiliates, to provide a loan or any other type of financing. This Preliminary Term Sheet supersedes any and all prior correspondence, written and oral, concerning a proposed loan with regard to the proposed loan facility. The actual terms and conditions under which CEFIA Holdings LLC may be willing to provide the loan facility to the Borrower (as hereinafter defined) shall be subject to, inter alia, (i) satisfactory completion by CEFIA Holdings LLC of its due diligence process in scope and with results satisfactory to Green Bank in Green Bank's sole and absolute discretion, (ii) the accuracy and completeness of all representations that Performance Guarantor (on your behalf and on behalf of Borrower) make to Green Bank, (iii) obtaining necessary internal credit approvals and Green Bank Board of Director authorization and the negotiation, execution and delivery of definitive documentation consistent with the proposed terms herein and otherwise satisfactory to CEFIA Holdings LLC and Green Bank (iv) no change, occurrence or development shall occur or shall have occurred that has had or could reasonably be expected to have a material adverse effect on the Performance Guarantor or Borrower, their respective businesses or the contemplated collateral for the proposed credit facility and (v)(1) all financial projections concerning the Borrower that have been or are hereafter made available to CEFIA Holdings LLC and Green Bank by the Performance Guarantor or any of its representatives (or on your or their behalf) (the "Projections") have been or will be prepared in good faith based upon reasonable assumptions and (2) all information, other than Projections, which has been or is hereafter made available to CEFIA Holdings LLC and Green Bank by the Performance Guarantor or any of its representatives (or on your or their behalf) in connection with any aspect of the transactions contemplated hereby, as and when furnished, is and will be complete and correct in all material respects and does not and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements contained therein not misleading. The pricing and terms included in this Preliminary Term Sheet are based on market conditions on the date hereof and are subject to change.*

**Borrower:** Skyview Pequonnock LLC (the "Borrower")

**Performance Guarantor:** Skyview Ventures, LLC (whole and direct owner of Borrower)

**Lender:** CEFIA Holdings, LLC

**Loan Facility:** Expansion of the current facility from \$7,000,000 to \$10,000,000 (the "Commitment"), available under multiple advances, with \$2,500,000 (the "ESS Limit") carved out for financing energy storage solution ("ESS") projects.

For ESS projects specifically, two advances per project will offered, as follows:

- Advance A: in an amount not to exceed the upfront incentive approved for the project by the program administrators of the Connecticut Electric Storage Program ("CT ESS Incentive Program"), with a financing term that ends at the earlier of: the commercial operation date of the project; or [to be determined following review of finalized CTT ESS incentive program rules]. Advance A (principal and accrued interest) is repayable in full at the end of its term and is herein referred to as Incentive Financing; and
- Advance B: in an amount to be determined by Lender's due diligence (in particular, following review of the longer term incentives offered by the CT ESS Incentive Program), term debt with either sculpted or mortgage style amortization, with a financing term not to exceed 10 years from the date of the advance.

Financing term for commercial solar projects will be dependent on underlying Major Contract term lengths and is not expected to exceed 20 years.

**Use of Proceeds:** The Loan Facility will be used for the development and longer-term financing and re-financing of commercial solar and ESS assets in the state of CT.

**Availability Limits and Period:** Fully available at closing until December 31 2023 for use in the development and longer term financing and re-financing of commercial solar PV and ESS projects located in the state of CT. Principal repaid by the Borrower during the availability period is eligible to be reborrowed for new eligible projects provided the outstanding balance under the Loan Facility does not breach either the Commitment or the ESS Limit.

**Security:** All obligations to Lender will be secured by:

1. First priority perfected security interest in and lien on and collateral assignment of the Borrower's existing and future assets, including pledged equity interests of Borrower indirectly owned by the Performance Guarantor, and the proceeds thereof;
2. Borrower's right, title and interest in all accounts, contract rights, rights to payment of a monetary obligation or other consideration to receive payments by virtue of being counterparty to power purchase agreements, zero emissions renewable energy credit contracts, ESS revenue sharing and CT ESS Incentive Program agreements (collectively, "Major Contracts");
3. Assignment of all warranties, licenses, insurance policies and proceeds related to any of the foregoing, and general intangibles.

Collateral to be further defined in the definitive documentation for the loan facility.

**Interest Rate:**

- For Incentive Financing: [REDACTED] on a 360 day basis
- For term financing with a maturity more than 10 years but not in excess of 20 years, interest rate (on a 360 day basis) will be dependent on counterparty to Major Contracts, indicatively:
  - o State: [REDACTED]
  - o Municipal: [REDACTED] for issuers of investment grade debt; between [REDACTED] otherwise, dependent on financial underwriting of municipality
  - o Affordable housing: [REDACTED]
  - o Other: [REDACTED]
- For term financing with a maturity of 10 years and less, the above rates will be reduced by [REDACTED]
- The above rates may be modified from time to time for the benefit of Borrower to take advantage of Green Bank promotional interest rate programs.

**Financial Covenants:** The collateral portfolio must maintain a DSCR of 1.30x, tested annually. For solar PV projects, the total loan amount advanced will not exceed 75% ("Advance Rate") of collateral portfolio forecast earnings before interest, tax, depreciation and amortization ("EBITDA"), and such EBITDA will be discounted at 5.50% to arrive at the Advance Rate. For ESS projects, the Advance Rate will be determined on a project by project basis following Lender due diligence.

**Closing Fee:** [REDACTED], payable at the closing of each advance.

**Reporting Covenants:** To be defined within loan documentation, but should expect: annual financial statements of Borrower and Performance Guarantor; annual payment performance history of customers of the commercial solar projects (collateral); annual operational performance (kWh) reports of collateral.

**Other Terms and Conditions:** To be defined within loan documentation, but should expect: events of default, cross default, default interest rate and late charges, remedies, indemnities, operating performance and operations and maintenance provisions, distributions of cash flow, deposit accounts control matters, liability, property casualty and business interruption insurance, annual financial statements of Borrower and Performance Guarantor; annual payment performance history of customers of the commercial solar projects (collateral); annual operational performance (kWh) reports of collateral.

**Expenses:** Following execution of this Term Sheet and once the negotiation and documentation process commences, the Borrower shall reimburse CGB for the costs and expenses, including the fees of outside counsel, incurred by CGB in connection with the negotiation, preparation and execution of the documentation to expand the Loan Facility, whether or not it closes, up to \$5,000.

**Enabling Statute and State Contracting:** The Green Bank is subject to the requirements outlined in Sections 16-245n of the Connecticut General Statutes and Borrower will be responsible for complying with applicable state contracting requirements.

**Governing Law and Forum:** Connecticut



## Appendix 2: Memo to Board for approval of amendment of key terms of \$7M Term Loan

# Memo

**To:** Board of Directors, Connecticut Green Bank

**From:** Louise Della Pesca, Associate Director, Clean Energy Finance and Bert Hunter, EVP & CIO

**CC:** Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Jane Murphy, EVP Finance and Administration

**Date:** June 18, 2021

**Re:** Amendment of CGB's Existing Senior Secured Term Loan to Skyview Ventures LLC's Special Purpose Vehicle

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### Introduction

This memorandum offers an update to the Connecticut Green Bank ("CGB") Board of Directors ("Board") on the performance of the existing senior secured term loan facility ("Term Loan") with Skyview Ventures LLC and makes a request to approve an amendment to the Term Loan documentation such that future advances under the facility may be made under revised commercial terms. At its meeting held May 26, 2021, the CGB Deployment Committee passed a resolution recommending that the Board approve the amendment of the Term Loan.

### Background: Existing Term Loan with Skyview Ventures LLC

Since its approval in March of 2020, the existing Term Loan with Skyview Venture LLC's wholly owned special purpose vehicle ("Skyview SPV") has expanded to \$7M. Through six separate advances, CGB has deployed \$3.5M against 28 solar facilities, representing a total of 2.6MW clean energy capacity financed. Table 1 below details the history of the loan facility:

Table 1 – History of expansion of Skyview SPV Term Loan

Date of Board Approval	Total Facility Size, MM	Further Detail
March 25, 2020	\$2.3	Appendix D: Terms of Original Loan
April 24, 2020	\$3.5	Appendix C: Board Memo
October 23, 2020	\$7.0	Appendix B: Board Memo
April 23, 2021	\$7.0 – additional 10 projects added to approved pipeline	Appendix A: Board Memo

## Term Loan Performance

- Borrower (Skyview SPV) is current on quarterly principal and interest payments
- Projects have generated an average of █████ of expected lifetime production (kWh).
- 27 of 28 project off-takers are current on payments under the power purchase agreements, and one off-taker is one month late in making payment but this delinquency is expected to be resolved quickly.

## Amendment to Term Loan documentation

Staff has been in the process of reviewing CGB’s interest rates across a range of product and risk categories, including funding in respect of our Commercial Property Assessed Clean Energy (“C-PACE”) program and Commercial Solar PPA with Inclusive Prosperity Capital (“IPC”) and others (such as Skyview). This review was taken up in the context of a determined softness in CGB’s markets for these activities, lower market interest rates more generally, comments from the marketplace across a range of counterparties, including several C-PACE contractors and developers, commercial solar PPA developers, solar funds (including IPC, Skyview, and others) that the funding rates demanded by CGB had become uncompetitive in the market. This was not always the case – and CGB has been careful to stay abreast of market terms. But the gap between CGB’s rates and the markets has now expanded to the point where – unless corrective action is taken – CGB will become less relevant in the market for funding generally. We see this as contrary to our goal of being a part of and helping to expand and invigorate the market, particularly for state projects, municipal projects and affordable multifamily projects. Maintaining a portfolio of transactions also helps with CGB’s fiscal sustainability, in line with the Board’s directive for CGB to work itself toward self-sustainability over time (Board meeting December 2017).

Accordingly, in line with this realignment of interest rates, staff propose amending the terms of future advances to Skyview SPV to maintain the attractiveness and competitiveness of the facility. If the Term Loan is brought in line with the wider debt market, Skyview has expressed to CGB it is more likely to utilize the Term Loan to finance its development of commercial solar projects in CT. Skyview’s pipeline is currently over 6MW, which represents an excellent opportunity to deploy CGB capital. Table 2 summarizes the proposed amendment to the terms of future advances.

Table 2: Comparison of existing terms to proposed amended terms for future advances

	Existing	Proposed amendment
Interest rate	█████	Dependent on off-taker: <ul style="list-style-type: none"> <li>- State: █████</li> <li>- Municipal: █████ for issuers of investment grade debt; between █████ otherwise, dependent on financial underwriting of municipality</li> <li>█████ Affordable housing: █████</li> </ul>

		- Other: [REDACTED]
Term length	15 years	Up to 25 years (to not exceed the remaining PPA term length of underlying project(s)) <sup>1</sup>
Debt service coverage ratio	No lower than 1.30x	No lower than 1.30x
Advance Rate	Up to 70%	Up to 75%

CGB will conduct the same due diligence activities on projects financed under the amended terms as it has on projects it has financed to date. CGB reserves the right in the loan documentation to not finance any project that does not meet its diligence requirements, including but not limited to:

- Lower of a 1.30x DSCR or a 75% advance rate (using a discount factor equivalent to interest rate on the advance)
- CGB review and approval of the major contracts associated with the PPA Projects (PPA, engineering, procurement and construction agreement, renewable energy credit contract)
- Use of 'tier 1' equipment in the construction of the projects
- CGB review and approval of operations and maintenance contracted program
- Underwriting of offtaker / review of evidence that offtaker has recently issued investment grade rated debt (or that a credit rating on outstanding debt has been affirmed as investment grade) OR the PPA obligation is being secured through the C-PACE program.

### Ratepayer Payback

*How much clean energy is being produced (i.e. kWh over the projects' lifetime) from the project versus the dollars of ratepayer funds at risk?*

The total portfolio is expected to produce 105,000,000 kWh of energy, over a 20-year period, and the Term Loan is up to \$7.0M. The 'kWh / \$ ratepayer funds at risk' metric is forecast to be 15.

### Capital Extended

*How much of the ratepayer and other capital that Green Bank manages is being expended on the project?*

The Term Loan will not exceed \$7.0M, as approved in the October 23, 2020 Board meeting.

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<sup>1</sup> NOTE: This "up to 25-year" standard is in line with our lending terms with solar PV transactions funded 100% by C-PACE advances and would only apply for PPA's to investment grade customers or those customers where the PPA obligation is secured through C-PACE.

## Strategic Selection

In the memorandum to the Board dated March 18, 2020 (Appendix 3), staff outlined the reasons why the Term Loan transaction with Skyview falls within the parameters of a strategic selection. The rationale in the March 18, 2020 memorandum still apply as well as the additional information provided herein.

## Recommendation

In conclusion, based on the good performance of the Term Loan and the underlying assets that secure it, and the opportunity to finance similar assets going forward, staff requests that Deployment Committee make a recommendation to the Board to approve an amendment to the Term Loan to ensure that it is a competitive and attractive financing option.

## Resolutions

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) has significant experience in the development and financing of commercial solar PPA projects in Connecticut;

**WHEREAS**, the Green Bank continually seeks new ways to work with private sector partners to meet the demonstrated need for flexible capital to continue expanding access to financing for commercial-scale customers looking to access solar and savings via a PPA;

**WHEREAS**, the Green Bank has established a working relationship with a private sector Connecticut-based solar developer, Skyview Ventures LLC (“Skyview”), and through that relationship the Green Bank has an opportunity to deploy capital for the development of clean energy in Connecticut, and specifically toward commercial solar PPA projects developed by Skyview in Connecticut (“Skyview PPA Projects”);

**WHEREAS**, the Green Bank is implementing a Sustainability Plan that invests in various clean energy projects and products to generate a return to support its sustainability in the coming years;

**WHEREAS**, based on diligence of Green Bank staff for a senior secured loan facility (“Original Term Loan”) the Green Bank Deployment Committee (the “Deployment Committee”) passed resolutions at its meeting held on February 27, 2020 to recommend to the Green Bank Board of Directors (the “Board”) the approval of the Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII;

**WHEREAS**, the Board passed resolutions at its meeting held on March 25, 2020 to approve the Original Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Original Term Loan transaction;

**WHEREAS**, the Board passed resolutions at its meeting held on April 24, 2020 to expand the Original Term Loan transaction to an amount not to exceed \$3.5M (the “Modified Term Loan”);

**WHEREAS**, the Board passed resolutions at its meeting held on October 23, 2020 to expand the Modified Term Loan transaction to an amount not to exceed \$7M (the “Existing Term Loan”);

**WHEREAS**, at its meeting held May 26, 2021, the Green Bank Deployment Committee recommended that the Board approve staff’s request to amend and restate the Board’s existing approval of the Existing Term Loan transaction on terms and conditions substantially consistent with those described in the memorandum presented to the Deployment Committee.

**NOW**, therefore be it:

**RESOLVED**, that the Board approves staff’s request to amend and restate the Board’s existing approval of the Existing Term Loan transaction as described in the memorandum submitted by the staff to the Board and dated June 18, 2021 (the “Memorandum”) on terms and conditions substantially consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Existing Term Loan transaction.

Submitted by: Louise Della Pesca, Associate Director, Clean Energy Finance and Bert Hunter, EVP & CIO

## Appendix A: Resolutions passed by Board of April 23, 2021 to increase number of approved projects under Term Loan facility

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) has significant experience in the development and financing of commercial solar power purchase agreement (“PPA”) projects in Connecticut;

**WHEREAS**, the Green Bank continually seeks new ways to work with private sector partners to meet the demonstrated need for flexible capital to continue expanding access to financing for commercial-scale customers looking to access solar and savings via a PPA;

**WHEREAS**, the Green Bank has established a working relationship with a private sector Connecticut-based solar developer, Skyview Ventures LLC (“Skyview”), and through that relationship the Green Bank has an opportunity to deploy capital for commercial solar PPA projects developed by Skyview in Connecticut (“Skyview PPA Projects”);

**WHEREAS**, the Green Bank is implementing a Sustainability Plan that invests in various clean energy projects and products to generate a return to support its sustainability in the coming years;

**WHEREAS**, based on diligence of Green Bank staff for a senior secured loan facility (“Original Term Loan”) the Green Bank Deployment Committee (the “Deployment Committee”) on February 27, 2020 recommended to the Green Bank Board of Directors (the “Board”) the approval of the Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII;

**WHEREAS**, the Board passed resolutions at its meeting held on March 25, 2020 to approve the Original Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Original Term Loan transaction;

**WHEREAS**, the Board authorized the expansion of the Original Term Loan transaction in an amount not to exceed \$3.5M on April 24, 2020 (the “Modified Term Loan”);

**WHEREAS**, the Board authorized the expansion of the Modified Term Loan transaction to an amount not to exceed \$7M on October 23, 2020 (the “Existing Term Loan”); and

**WHEREAS**, based on an expanding pipeline of Skyview PPA Projects and diligence of Green Bank staff, Green Bank staff proposes the expanded pipeline be approved for future advances within the limits of the Existing Term Loan, and such proposal was recommended for the approval of the Board by the Green Bank Deployment Committee and its meeting held November 17, 2021.

**NOW**, therefore be it:

**RESOLVED**, that the Board hereby amends and restates its approval of the Existing Term Loan transaction as described in the Project Qualification Memo submitted by the staff to the Board and dated April 18, 2021 (the "Memorandum") to include the expanded project pipeline of Skyview PPA Projects to be qualified for future advances within the \$7,000,000 limit of the Existing Term Loan on terms and conditions substantially consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Existing Term Loan transaction; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect these resolutions.

## Appendix B: Memo to Board for approval of \$7M Term Loan

# Memo

**To:** Board of Directors, Connecticut Green Bank

**From:** Louise Della Pesca, Associate Director, Clean Energy Finance and Bert Hunter, EVP & CIO

**CC:** Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO

**Date:** October 14, 2020

**Re:** Financing for a Senior Secured Term Loan to Special Purpose Vehicle owned by Skyview Ventures LLC: Expansion from \$3.5M to \$7.0M

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### Introduction – Background to Request for Facility Expansion

At the Connecticut Green Bank (“CGB”) Board of Directors (“Board”) meetings held on March 25 and April 24, 2020, resolutions were passed to enable CGB to enter into a senior secured term loan facility (“Term Loan”) with a special purpose vehicle (“SPV” or “Borrower”) that is wholly owned by Skyview Ventures, LLC (“Skyview”). At its March 25, 2020 meeting, the Board approved a facility size of \$2.3M, which was then expanded to \$3.5M on the same economic terms by resolutions passed at the April 24, 2020 meeting. The memorandum presented to the Board at the April 24, 2020 meeting, including detail on the economic terms, transaction structure, and risks and mitigants, is found in Appendix 1.

Since Board approval was granted, CGB has entered into loan documentation with the Skyview SPV (the “Existing Term Loan”) and \$2.1M of capital has been deployed in three separate advances. Beyond the projects being financed under the Existing Term Loan, Skyview has continued to develop a pipeline of high quality commercial solar power purchase agreement projects (“PPA Projects”) with primarily municipal off-takers in Connecticut. The PPA Projects are due to achieve commercial operations in the remaining months of 2020 and into 2021. Skyview has offered CGB the opportunity to advance debt against these PPA Projects on the same economic terms as the Existing Term Loan via an expansion from \$3.5M to \$7.0M (the “Expanded Term Loan”).

This memorandum offers an update to the Board on the economic and energy production performance of the Existing Term Loan to date, and makes a request for approval of the increased transaction size of the Expanded Term Loan.

### Term Loan Performance

- Borrower is current on quarterly principal and interest payments



- Table 1 summarizes the energy production and off-taker payment performance of 20 PPA Projects<sup>2</sup> that CGB has advanced against to date.
- The weighted average energy production performance in the [year to date] is █████ of expectation, which is consistent with CGB’s own portfolio of commercial solar projects in 2020.
- When structuring the Term Loan, CGB stress-tested expected production and found that a 10% reduction in performance would still ensure a 1.18x debt service coverage ratio (“DSCR”).
- All but one of the 20 off-takers is fully current on monthly payments. One off-taker is delinquent by a single month, when a change in personnel resulted in a miscommunication on invoicing. Skyview is confident that the delinquency will be resolved.

Table 1 – Energy Production and Payment Performance of 20 PPA Projects since start of Term Loan

PPA Project	Off-taker payment status	Actual energy production as % of expected	Notes
Goshen Center School	Current	█████	
Senior Center	Current	█████	Inverter manufacturer requested Skyview to trial the use of a smaller inverter, resulting in poor performance. Inverter manufacturer has since compensated Skyview for underperformance.
Transfer Station	Current	(See Notes)	Meter communication system failed twice, leaving Skyview with no production data until REC meter data can be accessed (4 month lag time)
South School	Current	█████	
Penfield Pavilion	Current	█████	
Fairfield Regional Fire School	Current	█████	
Egan Center	Current	█████	
West Shore School	Current	█████	
Animal Shelter 2	Current	█████	
Jennings Firehouse	Current	█████	
Transfer Station Roof	Current	█████	
Wood Middle School 1	Current	█████	Inverter issue in Q2 brought down performance; now fixed.

<sup>2</sup> One PPA Project that CGB has made a Term Loan advance against, Unquowa School, has only one month of operating history and has been excluded from the analysis in Table 1.

PPA Project	Off-taker payment status	Actual energy production as % of expected	Notes
Jennings Beach	Current		
Animal Shelter	Current		
Public Library	Current		
Reef Fire Department	Current		
Operation Hope	Current		
Fairfield Theater	Current		
REC Center	Current		
Duncaster Retirement Center	Delinquent on August 2020 only		Commissioning problems resulted in July underperformance; system is on target from August onward.
	<b>Weighted average:</b>		

### Overview of Collateral - Update

When it was sized to \$3.5M, the Term Loan was projected to finance 26 PPA Projects. So far, 21 PPA Projects have been financed. Table 2 summarizes Skyview's updated financeable pipeline of PPA Projects under and expanded Term Loan.

Table 2 – Skyview PPA Project Pipeline, 2020 and 2021

PPA Project	Size (kW)	Commercial Operations Target Date	Notes
Roger Ludlowe Middle School, Fairfield	196	October 2020	CGB has commenced due diligence
Burr Elementary School, Fairfield	82	October 2020	CGB has commenced due diligence
Holland Hill, Fairfield	84	October 2020	CGB has commenced due diligence
East School, New Canaan	268	October 2020	CGB has commenced due diligence
Kingswood Condos	229	Dec. 2020	CGB is developing then selling to Skyview
Newtown Community Center	130	Dec. 2020	
Newtown Firehouse	62	Dec. 2020	
Newtown Police	130	Dec. 2020	
Warren School	71	Dec. 2020	
Metro Storage West Haven	113	Dec. 2020	
Ridgefield - Scotland School	130	Dec. 2020	

Ridgefield - Veterans Park School	130	April 2021	
Ridgefield - Ridgebury School	130	May 2021	
Bridgeport - Fairchild Wheeler	70	May 2021	
Bridgeport - North Library	130	May 2021	
Bridgeport - Saden Library	130	May 2021	
Marvelwood (behind the meter)	360	May 2021	3 separate 100 - 160kW systems at a Marvelwood private school
Metro Storage	600	August 2021	2x 300 virtual net metering projects
Danaher	1,200	Dec. 2021	Virtual net metering project
<b>Total</b>	<b>4,245</b>		

CGB will conduct the same due diligence activities on PPA Projects in the expanded pipeline as it has on PPA Projects it has financed to date. CGB reserves the right in the loan documentation to not finance any PPA Project that does not meet its diligence requirements, including but not limited to:

- Lower of a 1.30x DSCR or a 70% advance rate (using a discount factor of 5.50%)
- CGB review and approval of the major contracts associated with the PPA Projects (PPA, engineering, procurement and construction agreement, renewable energy credit contract)
- Use of 'tier 1' equipment in the construction of the PPA Projects
- CGB review and approval of operations and maintenance contracted program
- Underwriting of off-taker / review of evidence that off-taker has recently issued investment grade rated debt

### Ratepayer Payback

*How much clean energy is being produced (i.e. kWh over the projects lifetime) from the project versus the dollars of ratepayer funds at risk?*

The portfolio is expected to produce 80,000,000 kWh of energy, over a 15 year period, and the Term Loan is up to \$7.0M. The kWh / \$ ratepayer funds at risk is forecast to be 11.4.

### Capital Extended

*How much of the ratepayer and other capital that Green Bank manages is being expended on the project?*

The Expanded Term Loan will not exceed \$7.0M.

## Recommendation

In conclusion, based on the good performance of the Existing Term Loan and the underlying assets that secure it, as well as the proposed due diligence approach for future PPA Projects which could be financed by the Expanded Term Loan, and in light of the resolutions of the Board at the meeting on April 24, 2020 to approve a loan facility not to exceed \$3.5M, Staff recommends approval of the Expanded Term Loan proposal, with a loan facility not to exceed \$7.0M.

## Revised and Restated Resolutions

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) has significant experience in the development and financing of commercial solar PPA projects in Connecticut;

**WHEREAS**, the Green Bank continually seeks new ways to work with private sector partners to meet the demonstrated need for flexible capital to continue expanding access to financing for commercial-scale customers looking to access solar and savings via a PPA;

**WHEREAS**, the Green Bank has established a working relationship with a private sector Connecticut solar developer, Skyview Ventures (“Skyview”), and through that relationship the Green Bank has an opportunity to deploy capital for the development of clean energy in Connecticut, and specifically toward commercial solar PPA projects developed by Skyview in Connecticut (“Skyview PPA Projects”);

**WHEREAS**, the Green Bank is implementing a Sustainability Plan that invests in various clean energy projects and products to generate a return to support its sustainability in the coming years

**WHEREAS**, based on diligence of Green Bank staff of the proposed senior secured loan facility (“Term Loan”) the Green Bank Deployment Committee (the “Deployment Committee”) passed resolutions at its meeting held on February 27, 2020 to recommend to the Green Bank Board of Directors (the “Board”) the approval of the Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII;

**WHEREAS**, the Board passed resolutions at its meeting held on March 25, 2020 to approve the Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Term Loan transaction;

**WHEREAS**, the Board passed resolutions at its meeting held on April 24, 2020 to expand the approved the Term Loan transaction to an amount not to exceed \$3.5M; and

**WHEREAS**, based on an expanding pipeline of Skyview PPA Projects and diligence of Green Bank staff, Green Bank staff proposes the Term Loan be increased.

**NOW**, therefore be it:

**RESOLVED**, that the Board hereby amends and restates its approval of the Term Loan transaction as described in the Project Qualification Memo submitted by the staff to the Board and dated October 14, 2020 (the "Memorandum") to increase the amount of the Term Loan from \$3.5 million to \$7.0 million and on terms and conditions substantially consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Term Loan transaction; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect this Resolution.

Submitted by: Louise Della Pesca, Associate Director, Clean Energy Finance and Bert Hunter, EVP & CIO

## Appendix C: Memo to Board for approval of \$3.5M Term Loan

# Memo

**To:** Board of Directors, Connecticut Green Bank

**From:** Louise Della Pesca, Associate Director, Clean Energy Finance; Desiree Miller, Senior Manager, Clean Energy Finance; Fiona Stewart, Manager, Clean Energy Finance; Mariana Cardenas Trief, Principal, Monte Verde Consulting LLC

**CC:** Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Brian Farnen, General Counsel and CLO

**Date:** April 17, 2020

**Re:** Financing for a Senior Secured Term Loan to Special Purpose Vehicle owned by Skyview Ventures LLC in an amount not to exceed \$3.5M

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### Introduction – Update to Memorandum dated March 18, 2020

A version of this memorandum was submitted to the Board of Directors on March 18, 2020 and resolutions were passed by the Board at its meeting held on March 25, 2020 to approve a term loan facility in an amount not to exceed \$2.3M. Since the resolutions were passed on March 25, Skyview Ventures LLC presented the Connecticut Green Bank with an opportunity to expand the transaction up to \$3.5M on the same economic terms. This memorandum represents an update to the Board and a request for approval of the increased transaction size.

### Investment Summary

This credit memorandum sets out the rationale for advancing a senior secured loan facility (“Term Loan”) in an amount not to exceed \$3.5M to a Special Purpose Vehicle (“SPV” or “Borrower”) wholly owned by Skyview Ventures, LLC (“Skyview”). The proceeds of the Term Loan are being used to refinance a portion of Skyview’s development capital in commercial solar assets in Connecticut. Once this portion of development capital is refinanced with the Term Loan, Skyview will be able to use the proceeds from the refinancing to develop additional commercial solar assets in Connecticut. A summary of terms is provided in Appendix A. The interest rate on the Term Loan is [REDACTED] over a 15 year term, with arrangement fees of 1.00% due on closing. A first priority lien on the SPV’s assets, which comprise up to 26 operational commercial solar PPA projects (each “a Project” and, collectively, “Projects”) with up to 25 municipal and one (1) commercial off-takers in Connecticut, will secure the Term Loan.<sup>3</sup> A sculpted amortization schedule ensures that the forecast debt service coverage ratio (“DSCR”) is 1.30x throughout the term. The lender is CEFIA Holdings, LLC (“Holdings” or “Lender”), Connecticut Green Bank’s (“Green Bank”) commercial solar development subsidiary, and the borrower is a SPV owned by Skyview, a

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<sup>3</sup> See schedule of Projects (Appendix F)

Connecticut solar developer founded in 2008 with ██████████ commercial solar assets (over ██████████ capacity) under management.

By advancing a Term Loan that is secured by assets that are very familiar to Green Bank, which itself has 20 MW of commercial solar assets under management, Holdings is operating within an acceptable risk tolerance to access long term interest income, thereby contributing to the organization's wider financial sustainability goals. In addition, Green Bank is fulfilling its role of promoting clean energy deployment by addressing a gap in the market due to transaction costs associated with financing these 'smaller portfolios' as further described below.

## Background

As part of Green Bank's commercial solar power purchase agreement ("PPA") investment program, the Green Bank Board of Directors approved \$15 M funding in July 2019 for "financing one or more 3<sup>rd</sup>-party ownership platforms, in the form of sponsor equity and/or debt" and also gave approval to "sell solar PPA projects developed by Holdings to third parties". With that mandate, Holdings closed a transaction with Skyview in the fourth quarter of 2019 ("Q42019") involving the sale of 6 commercial solar PPA projects and a concurrent term loan secured by the sold assets. The \$1.65 M term loan portion of the Q42019 transaction with Skyview was very similar to the investment being presented for approval by this memo: ██████████ interest rate, secured by a first priority lien on commercial solar assets, 15 year term, 1.35x DSCR. The Q42019 transaction established precedential terms, covenants, and documentation, all of which have reduced the transaction costs associated with this Term Loan.

Following the successful close of the Q42019 transaction, Skyview approached Green Bank to gauge interest in advancing a Term Loan, secured by up to 19 operational commercial solar PV assets with Connecticut municipality off-takers and the additional 7 Projects that soon will be placed in service.

Prior to approaching Green Bank, Skyview contacted private sector banks but discovered that the transaction costs associated with accessing debt across the size of the portfolio was challenging and proved too onerous. The smooth working relationship that Green Bank had established with Skyview, the indicative quality of the assets and cashflows contemplated as security for the Term Loan, and the use of Green Bank-preferred documentation were the determining factors as staff proceeded to conduct due diligence for the transaction.

## Overview of Skyview Ventures LLC

Skyview Ventures LLC is the parent company of 13 subsidiaries (Organizational Chart in Appendix B), which perform various renewable energy related business activities, including participating in the renewable energy credit ("RECs") markets, and developing and owning solar facilities.

Three of the subsidiaries' core business is trading renewable energy incentives (such as RECs) at the state level. These REC merchant businesses provide the majority of Skyview Ventures' earnings.

Two other subsidiaries, Davis Hill Development and Skychargers, are focused on the construction of clean energy assets such as solar facilities and electrical vehicle charging stations, which, once installed, are either sold to customers or are owned and operated by the remaining eight subsidiaries. The Green Bank has, prior to these transactions, entered into EPC contracts with Davis Hill Development.

The consolidated financial statements of Skyview are strong with average annual earnings before tax, depreciation and amortization (“EBITDA”) of [REDACTED] over the past three years. Net [REDACTED]. While this memo presents a ‘non-recourse’ Term Loan to a SPV of Skyview, and will be secured by PPA Projects without a payment guaranty from the parent, the financial health of the parent is considered a credit positive because Holdings will obtain a performance guaranty from the parent. The performance guaranty obligates Skyview to pay all costs and expenses associated with operating the PPA Projects that secure the Term Loan, which is why Staff reviewed the financial health of Skyview as part of the due diligence for this transaction.

### Overview of Collateral

The Term Loan will be secured by up to twenty six (26) projects located in Connecticut. Each Project off-taker, with the exception of one private school in Fairfield CT, is an investment grade rated municipality. The majority, 70%, of the Projects are / will be installed on Fairfield municipal buildings. The other Project off-takers are the municipalities of Newtown, Milford, New Canaan, and Goshen, and a private school in Fairfield. Below are details of the portfolio:

Table 1: Collateral Specifications – Full Portfolio<sup>4</sup>

Number of Projects	26
Portfolio Size (kW)	2,219
Average size of Projects (kW)	85.35
Average Age of Systems (years)	2.35
Weighted Average PPA rate (\$/kWh)	[REDACTED]
Weighted Average PPA annual escalator (%)	[REDACTED]
Weighted Remaining PPA Term (years)	18.86
Weighted ZREC Price (\$/MWh)	\$97.09
Weighted Remaining ZREC Term (years)	13.58

Table 1 shows that the weighted average remaining term of the PPAs exceeds the term of the Term Loan (15 years), which is important because the PPA revenue provides over 50% of the revenue stream for the Projects. The weighted average remaining term of the of the

<sup>4</sup> At the date of this memorandum, seven (7) out of twenty six (26) projects, which account for 33% of the portfolio by capacity, are subject to on-going diligence and may be excluded from the collateral pool. No loan advance will be made against a project that is excluded from the collateral pool.



ZREC contracts is less than the term of the Term Loan but, by sculpting the amortization profile of the Term Loan, the forecast DSCR will remain a healthy 1.30x.

Staff has conducted the following due diligence on the Projects:

- Reviewed the terms of the PPAs and found them to be commensurate with market expectations of such contracts, and reviewed ZREC terms to confirm value and term of the contracted revenue stream, in particular accounting for ZREC clipping<sup>5</sup> which reduces project revenue below what is explicitly noted in the ZREC contract but aligned with the ultimate size of the PV system.
- Reviewed interconnection agreements and utility authorization to interconnect to confirm that all Projects have permission to operate.
- Reviewed expected production figures to confirm that Projects are expected to generate revenues as outlined in a cashflow forecast model (extract at Appendix D)
- Reviewed actual generation figures for Projects in operation for more than three years to confirm production is aligned with expected production figures
- Reviewed as-built engineering drawings and / or engineering inspection reviews for each Project to confirm that the projects were constructed in accordance with their original design. This review confirmed the quality of equipment used in the Projects, to be 'Tier 1' modules, comparable to the equipment used by Holdings when developing commercial solar projects.

Appendix E summarizes the technical due diligence performed on the Projects, which resulted in no adverse findings<sup>6</sup>.

For the seven (7) projects that are in-construction at the date of this memorandum, an independent engineer will be engaged to perform a commissioning inspection prior to commercial operation date. Should the inspection raise adverse results, the project(s) in question will be excluded from the collateral pool and the associated loan financing will not be advanced.

Staff has reviewed the production and payment history of the already-operational Projects for the purposes of (a) evaluating actual vs. expected performance in terms of kWh produced, and (b) confirming that the off-takers are not delinquent or slow payers on the contracts.

As described in the *Operational Risk* section of this memo, the operational Projects have been meeting production forecasts, with weather-adjusted production relative to expected production ranging from [REDACTED] over the past three years.

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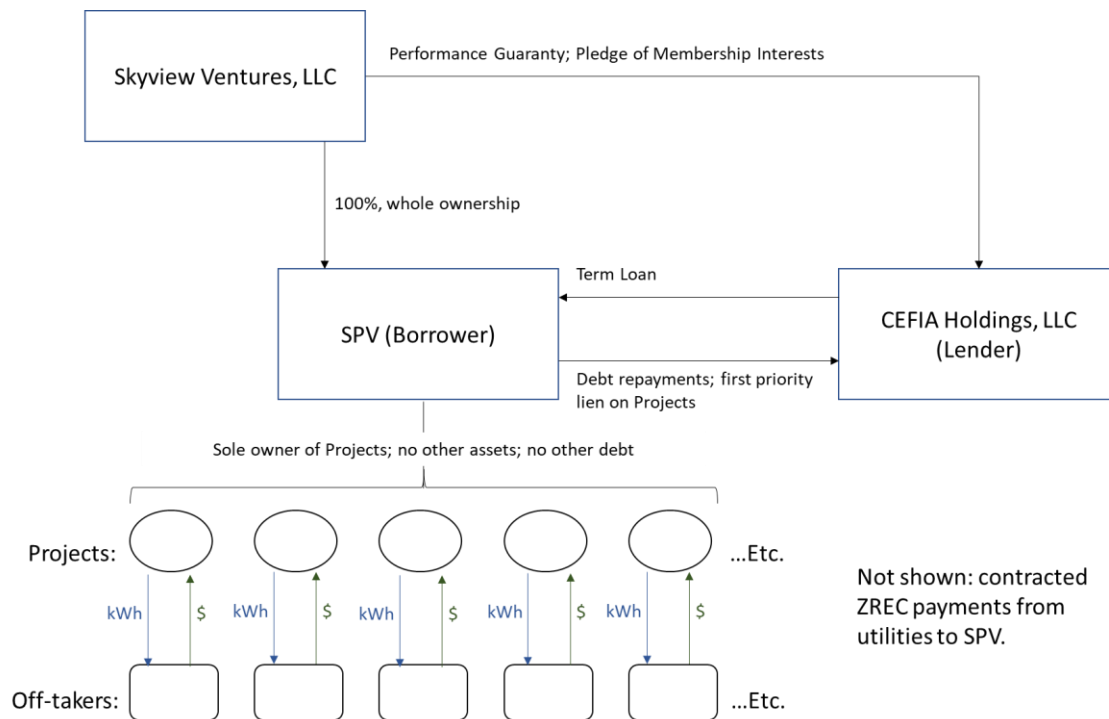
<sup>5</sup> ZREC clipping occurs when the actual size of a solar project, once built, is smaller than originally conceived at the time the ZREC contract for the project was obtained. When a ZREC contract is obtained, the contract states the size of the project and the number of ZRECs, each year, that project is permitted to generate. If the size of the project is subsequently decreased, the number of ZRECs it is permitted to generate is decreased on a pro-rata basis.

<sup>6</sup> At the date of this memorandum, seven (7) out of twenty-six (26) projects, which account for 33% of the portfolio by capacity, are subject to on-going diligence and may be excluded from the collateral pool. No loan advance will be made against a project that is excluded from the collateral pool.

Based on the Accounts Receivable Report provided by Skyview, the off-takers have a history of making timely payments. All four of the municipal off-takers are strong, investment grade credits (AA or better). Their credit ratings, determined at the time of their most recent bond issuances, are presented in Appendix C.

## Transaction Structure

Holdings will advance a Term Loan facility to a SPV that has no other debt and its only assets are the Projects that secure the Term Loan. The SPV services the Term Loan repayments from operating income earned by up to 26 PPA Projects.



## Risks and Mitigants

### Operational Risk

- Borrower's ability to service the debt repayments is dependent on how well the Projects operate, i.e., how much electricity they generate.
- 35% of the projects in the portfolio have been operational for at least three years, which means that Staff has a good dataset from which to analyze operational performance.
- Actual production of the operational projects in the portfolio was [REDACTED], compared to expected production (weather adjusted).

- For the projects in the portfolio that do not yet have operational track records, Staff performed diligence in the same manner as it does for projects developed internally to ensure production estimates are reliable<sup>7</sup>. This included comparison of expected yields (kWh / kW) to similar projects within Green Bank's 20 MW, 100+ commercial solar asset portfolio.
- Further, Staff stress tested the cashflow forecast model for the transaction to ensure that, even if the portfolio performed consistently 10% below production expectations, Borrower would still have adequate cash flow to repay debt service on the Term Loan (the stress tested DSCR was 1.18x).
- The 'break even' DSCR of 1.00x is reached when the entire portfolio performs at a level that is 22% below forecast production, which is a scenario that staff considers unlikely to occur based on the historical performance of the Green Bank portfolio.
- Borrower is required to maintain an Operations and Maintenance ("O&M") agreement for the duration of the Term Loan. A copy of the O&M contract has been reviewed by Staff and found to be commensurate with the O&M contract that Green Bank has in place for its owned commercial solar assets.

#### *Default Risk*

- Borrower is required to maintain a DSCR of 1.30x, tested annually, for the duration of the Term. Staff has developed a cashflow forecast model that supports the ability of Borrower to maintain the DSCR given the expected revenue and operating expenses.
- Further, reserves equivalent to 3 months of principal and interest payments will be funded at closing.
- If Borrower were to default on the Term Loan, Lender would be entitled to take ownership of the collateral (up to 26 PPA Projects). In this worst case downside scenario, the net present value ("NPV") of the EBITDA generated by the Projects under the remaining PPA terms is greater than the Term Loan amount, meaning the effective advance rate is 70%<sup>8</sup>.
- Given Green Bank's experience managing this type of asset, it has the appropriate internal expertise to manage the Projects and ensure the portfolio provides the expected cashflows.

#### *Construction Risk*

- Seven (7) of the twenty six (26) projects have not reached commercial operation. Loan advances will be scheduled such that Lender will not take any construction risk and funds will only be advanced for projects once they have passed an independent engineer's commissioning inspection and have reached commercial operation.

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<sup>7</sup> At the date of this memorandum, seven (7) out of twenty six (26) projects, which account for 33% of the portfolio by capacity, are subject to on-going diligence and may be excluded from the collateral pool. No loan advance will be made against a project that is excluded from the collateral pool.

<sup>8</sup> NPV assumes a 5.50% discount rate to mirror the interest rate on the Term Loan.

## Ratepayer Payback

*How much clean energy is being produced (i.e. kWh over the projects lifetime) from the project versus the dollars of ratepayer funds at risk?*

The portfolio is expected to produce 37,970,000kWh of energy, over a 15 year period, and the Term Loan is up to \$3.5M. The kWh / \$ ratepayer funds at risk is forecast to be 10.8.

## Capital Extended

*How much of the ratepayer and other capital that Green Bank manages is being expended on the project?*

The Term Loan will not exceed \$3.5M.

## Strategic Selection

This transaction falls within the parameters of a strategic selection, subject to Board approval, for the reasons outlined below.

- **Special Capabilities** – Skyview, the parent company of Borrower, has over a decade of experience in developing, owning, and operating commercial solar PV assets. Specifically, it has experience in the Connecticut market and, with its wholly owned development subsidiaries, is vertically integrated unlike its industry peers.
- **Uniqueness** – While the Term Loan is very similar to transactions previously entered into by Holdings, it differs because (a) the majority of the Projects that will secure the Term Loan are already operational, and (b) the Projects were not developed by Holdings itself;
- **Strategic Importance** – The Term Loan represents a continuation of a business relationship with a counterparty that Green Bank has successfully and smoothly transacted with in the past and is likely to transact with in future. For example, Green Bank continues to develop commercial solar PPA projects with underserved off-takers and Skyview has a track record of purchasing such projects from Green Bank and has expressed an interest in doing so in future. Further, by providing the Term Loan to Skyview, Green Bank is setting a precedent and defining a process for future similar transactions that can provide a source of investment income to support the long term sustainability of the organization;
- **Urgency and Timeliness** – Green Bank seeks to deploy capital in mission-driven transactions with appropriate levels of risk and return. This transaction meets this criteria and Skyview has expressed the need to close by April 30, 2020; and
- **Multiphase Project** - Successful execution of the Term Loan would represent a follow-on transaction from that which closed in Q42019, and will make use of the loan documentation previously agreed between parties. It is anticipated that Skyview will make further leveraged purchases of PPA projects that Holdings is developing in 2020.

## Recommendation

In conclusion, based on the diligence of the proposed Term Loan transaction meeting Green Bank underwriting criteria and in light of the resolution of the Board at the meeting on March 25, 2020 to approve a loan facility not to exceed \$2.3M, Staff recommends approval of this updated transaction, with a loan facility not to exceed \$3.5M, by the Board of Directors.

## Revised and Restated Resolutions

**WHEREAS**, the Connecticut Green Bank (“Green Bank”) has significant experience in the development and financing of commercial solar PPA projects in Connecticut;

**WHEREAS**, the Green Bank continually seeks new ways to work with private sector partners to meet the demonstrated need for flexible capital to continue expanding access to financing for commercial-scale customers looking to access solar and savings via a PPA;

**WHEREAS**, the Green Bank has established a working relationship with a private sector Connecticut solar developer, Skyview Ventures (“Skyview”), and through that relationship the Green Bank has an opportunity to deploy capital for the development of clean energy in Connecticut;

**WHEREAS**, the Green Bank is implementing a Sustainability Plan that invests in various clean energy projects and products to generate a return to support its sustainability in the coming years

**WHEREAS**, based on diligence of Green Bank staff of the proposed senior secured loan facility (“Term Loan”) in an amount not to exceed \$3.5M to a Special Purpose Vehicle (“SPV”) wholly owned by Skyview confirming that the Term Loan transaction meets Green Bank underwriting criteria, the Green Bank Deployment Committee (the “Deployment Committee”) passed resolutions at its meeting held on February 27, 2020 to recommend to the Green Bank Board of Directors (the “Board”) the approval of the Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII; and

**WHEREAS**, the Board passed resolutions at its meeting held on March 25, 2020 to approve the Term Loan transaction in an amount not to exceed \$2.3M as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Term Loan transaction.

**NOW**, therefore be it:

**RESOLVED**, that the Board hereby amends and restates its approval of the Term Loan transaction as described in the Project Qualification Memo submitted by the staff to the Board and dated April 17, 2020 (the “Memorandum”) and on terms and conditions substantially

consistent with those described in the Memorandum as a Strategic Selection and Award pursuant to the Green Bank Operating Procedures Section XII given the special capabilities, uniqueness, strategic importance, urgency and timeliness, and multi-phase characteristics of the Term Loan transaction; and

**RESOLVED**, that the proper Green Bank officers are authorized and empowered to do all other acts and execute and deliver all other documents as they shall deem necessary and desirable to effect this Resolution.

Submitted by: Louise Della Pesca, Associate Director, Clean Energy Finance; Desiree Miller, Senior Manager, Clean Energy Finance; Fiona Stewart, Manager, Clean Energy Finance; Mariana Cardenas Trief, Principal, Monte Verde Consulting LLC.

## Appendix D: Original Term Sheet

**Indicative Summary of Terms and Conditions  
Skyview Ventures Special Purpose Vehicle  
Up to \$2,300,000 Senior Secured Loan Facility**

February 10, 2020

*For Discussion Purposes Only – Confidential – This is Not a Commitment*

*This Indicative Summary of Terms and Conditions or Preliminary Term Sheet describes certain of the principal terms and conditions of the proposed line of credit described below, is for discussion purposes only and is not to be construed in any way as a commitment or undertaking of CEFIA Holdings LLC, or any of its subsidiaries or affiliates, to provide a loan or any other type of financing. This Preliminary Term Sheet supersedes any and all prior correspondence, written and oral, concerning a proposed loan with regard to the proposed loan facility. The actual terms and conditions under which CEFIA Holdings LLC may be willing to provide the loan facility to the Borrower (as hereinafter defined) shall be subject to, inter alia, (i) satisfactory completion by CEFIA Holdings LLC of its due diligence process in scope and with results satisfactory to Green Bank in Green Bank's sole and absolute discretion, (ii) the accuracy and completeness of all representations that Performance Guarantor (on your behalf and on behalf of Borrower) make to Green Bank, (iii) obtaining necessary internal credit approvals and Green Bank Board of Director authorization and the negotiation, execution and delivery of definitive documentation consistent with the proposed terms herein and otherwise satisfactory to CEFIA Holdings LLC and Green Bank (iv) no change, occurrence or development shall occur or shall have occurred that has had or could reasonably be expected to have a material adverse effect on the Performance Guarantor or Borrower, their respective businesses or the contemplated collateral for the proposed credit facility and (v)(1) all financial projections concerning the Borrower that have been or are hereafter made available to CEFIA Holdings LLC and Green Bank by the Performance Guarantor or any of its representatives (or on your or their behalf) (the "Projections") have been or will be prepared in good faith based upon reasonable assumptions and (2) all information, other than Projections, which has been or is hereafter made available to CEFIA Holdings LLC and Green Bank by the Performance Guarantor or any of its representatives (or on your or their behalf) in connection with any aspect of the transactions contemplated hereby, as and when furnished, is and will be complete and correct in all material respects and does not and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements contained therein not misleading. The pricing and terms included in this Preliminary Term Sheet are based on market conditions on the date hereof and are subject to change.*

***Borrower:*** A special purpose entity wholly and directly owned by Skyview Ventures, LLC (the "Borrower")

***Performance Guarantor:*** Skyview Ventures, LLC

***Lender:*** CEFIA Holdings, LLC

***Loan Facility:*** Up to \$2,300,000 available under multiple advances within a 12 month period, with a financing term not to exceed 15 years from the date of the final advance.

***Availability Limits:*** Fully available at closing for use in the development and longer term financing and re-financing of commercial solar PV projects located in the state of CT.

**Security:** All obligations to Lender will be secured by:

1. First priority perfected security interest in and lien on and collateral assignment of the Borrower's existing and future assets, including pledged equity interests of Borrower indirectly owned by the Performance Guarantor, and the proceeds thereof;

2. Borrower's right, title and interest in all accounts, contract rights, rights to payment of a monetary obligation or other consideration to receive payments by virtue of being counterparty to power purchase agreements and zero emissions renewable energy credit contracts;

3. Assignment of all warranties, licenses, insurance policies and proceeds related to any of the foregoing, and general intangibles.

Collateral to be further defined in the definitive documentation for the loan facility.

**Use of Proceeds:** The Loan Facility will be used for the development and longer-term financing and re-financing of commercial solar assets in the state of CT.

**Interest Rate:** [REDACTED] calculated on a 360 day basis.

**Financial Covenants:** The collateral portfolio must maintain a DSCR of not less than 1.30x, tested annually. The total loan amount advanced will not exceed 70% ("Advance Rate") of collateral portfolio forecast earnings before interest, tax, depreciation and amortization ("EBITDA"), and such EBITDA will be discounted at 5.50% to arrive at the Advance Rate.

**Closing Fee:** [REDACTED] of loan facility, payable at closing.

**Reporting Covenants:** To be defined within loan documentation, but should expect: annual financial statements of Borrower and Performance Guarantor; annual payment performance history of customers of the commercial solar projects (collateral); annual operational performance (kWh) reports of collateral.

**Other Terms and Conditions:** To be defined within loan documentation, but should expect: events of default, cross default, default interest rate and late charges, remedies, indemnities, operating performance and operations and maintenance provisions, distributions of cash flow, deposit accounts control matters, liability, property casualty and business interruption insurance, annual financial statements of Borrower and Performance Guarantor; annual payment performance history of customers of the commercial solar projects (collateral); annual operational performance (kWh) reports of collateral.

**Expiration:** The proposal herein shall not be a basis for negotiation unless definitive documentation is executed and delivered not later than April 15, 2020.<sup>9</sup>

**Expenses:** The Borrower shall reimburse CGB for the costs and expenses, including the fees of outside counsel, incurred by CGB in connection with the preparation and execution of the Loan Facility, whether or not it closes, up to \$10,000.

**Enabling Statute and State Contracting:** The Green Bank is subject to the requirements outlined in Sections 16-245n of the Connecticut General Statutes and Borrower will be responsible for complying with applicable state contracting requirements.

**Governing Law and Forum:** Connecticut

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<sup>9</sup> Date might need adjustment due to impact from the Coronavirus



# Decennial Societal Impact Report

FY12  
FY21

Since the Connecticut Green Bank's inception through the bipartisan legislation in July 2011, we have mobilized more than **\$2.14 billion of investment** into the State's green economy. To do this, we used **\$288.4 million** in Green Bank dollars to attract \$1.85 billion in private investment, a leverage ratio of **\$7.40 for every \$1**. The impact of our deployment of renewable energy and energy efficiency to families, businesses, and our communities is shown in terms of economic development, environmental protection, equity, and energy (data from FY 2012 through FY 2021).

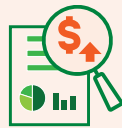
## ECONOMIC DEVELOPMENT

**JOBS** The Green Bank has supported the creation of more than **25,612** direct, indirect, and induced job-years.



### TAX REVENUES

The Green Bank's activities have helped generate an estimated **\$107.4 million** in state tax revenues.

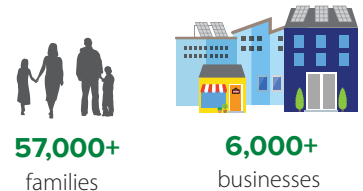


**\$52.8 million** individual income tax  
**\$27.5 million** corporate taxes  
**\$27.1 million** sales taxes

## ENERGY

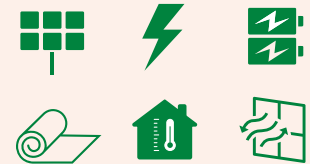
### ENERGY BURDEN

The Green Bank has reduced the energy costs on families, businesses, and our communities.



### DEPLOYMENT

The Green Bank has accelerated the growth of renewable energy to more than **494 MW** and lifetime savings of over **64.1 million MMBTUs** through energy efficiency projects.



## ENVIRONMENTAL PROTECTION

**POLLUTION** The Green Bank has helped reduce air emissions that cause climate change and worsen public health, including **9.3 million pounds** of SOx and **10.7 million pounds** of NOx.



**9.9 MILLION tons of CO<sub>2</sub> :**



**163 MILLION** tree seedlings grown for 10 years

OR



**2.1 MILLION** passenger vehicles driven for one year

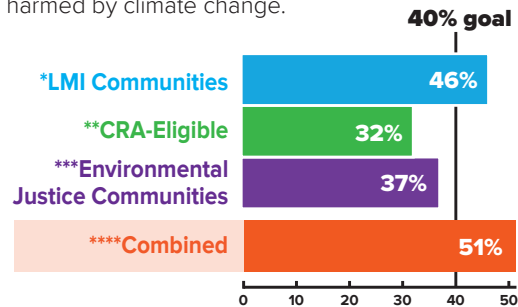
**PUBLIC HEALTH** The Green Bank has improved the lives of families, helping them avoid sick days, hospital visits, and even death.



**\$298.1 – \$674.1 million of lifetime public health value created**

## EQUITY

**INVESTING** in vulnerable communities, The Green Bank has set **goals** to reach **40% investment** in communities that may be disproportionately harmed by climate change.



\*LMI Communities – census tracts where households are at or below 100% Area Median Income.

\*\*Community Reinvestment Act (CRA) Eligible – households at or below 80% of Area Median Income and all projects in programs designed to assist LMI customers.

\*\*\*Environmental Justice Community means a municipality that has been designated as distressed by Connecticut Department of Economic and Community Development (DECD) or a census block group for which 30% or more of the population have an income below 200% of the federal poverty level.

\*\*\*\*Combined Vulnerable Communities include LMI, CRA and EJC.



Winner of the 2017 Harvard Kennedy School Ash Center Award for Innovation in American Government, the Connecticut Green Bank is the nation's first green bank.

Learn more by visiting [ctgreenbank.com/strategy-impact/impact](http://ctgreenbank.com/strategy-impact/impact)

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Sources: Connecticut Green Bank Comprehensive Annual Financial Reports

# Hartford Courant

## **‘This will all be underwater’: As climate change arrives in Connecticut, coastal towns like Groton face a precarious future of rising sea levels and intensifying storms**

November 4, 2021

By Eliza Fawcett and Alex Putterman



*NOAA models show that the Willow Point neighborhood of Groton is one of the areas vulnerable to sea-level rise. Residents say flooding in their community has gone from a periodic occurrence to a regular fact of life. “The last 10 years is when we’ve really recognized that the water level is really rising,” said resident Paul Fox, whose home is at the tip of Spence Point (above) in the Willow Point neighborhood. “Low tide is close to what high tide used to be.”*

GROTON — Along the banks of the Mystic River in Groton, Zell Steever points to landmarks he doesn’t expect to survive climate change.

A row of buildings across the water. A gleaming new structure at the end of Gravel Street. Handsome clapboard houses with wide lawns, many dating back to the mid-19th century. All are in danger, says Steever, a white-bearded environmentalist who chairs Groton’s resilience and sustainability task force.

Around the corner, West Main Street bustles with New England charm. Visitors step into boutique clothing stores, shop for books and eat doughnuts in the September sun.

“Oh, by the way,” Steever says, gesturing widely, “this will all be underwater.”

Climate change has already arrived in Connecticut, as demonstrated this summer by scorching temperatures and punishing storms. In the coming decades, its effects will only accelerate.

While the entire state will face increasing impacts of climate change, seaside communities like Groton will feel them most acutely and immediately. As greenhouse gas emissions continue to warm the planet, storms will become more frequent and more intense. Property will be damaged and people displaced. In

many cases, the consequences will be particularly severe for vulnerable groups, including the poor and the elderly.

Meanwhile, rising sea levels, fueled by melting glaciers thousands of miles away, will alter everyday life in low-lying areas. According to one estimate, Long Island Sound could rise by as much as 20 inches by 2050, enough to submerge parts of Groton's shore and cause regular flooding in residential neighborhoods and along key roads. By 2100 — within the lifetime of children born today — the Sound could rise by up to 2 meters, enough to submerge beaches, commercial areas, most of Groton-New London Airport and parts of residential areas currently home to thousands of people.

A 2011 **study** commissioned by the town of Groton and partly funded by the U.S. Environmental Protection Agency warned that climate change could lead to coastal flooding, sewer overflows, loss of wetlands, reduced drinking water capacity, submerged Amtrak lines and a reduction in the “overall quality of life, aesthetics and enjoyment of citizens.”



*With sea levels projected to rise up to 20 inches by 2050 and 2 meters by the end of the 21st century, neighborhoods along the Connecticut shore are increasingly at risk. This image shows the Groton Long Point neighborhood.*

And yet in Groton, as in many places threatened by climate change, public officials have yet to match the urgency of the crisis with concrete action. For years, local officials have hosted forums, commissioned studies and floated ideas but implemented few meaningful solutions.

Environmentalists in Groton say something has to change.

“We’ve seen the effects of sea-level rise. We’re living with it, right now,” says Frank Bohlen, an emeritus professor of marine sciences at UConn who also serves on Groton’s resilience and sustainability task force. “We don’t need to hypothesize about what’s going to happen in 2050. It’s going on.”

### **‘In the line of potential damage’**

Groton, a town of about 38,000, sits in Connecticut’s southeast corner, across the Thames River from New London and across the Mystic River from Stonington, bordered to the south by Long Island Sound. According to models from the National Oceanic and Atmospheric Administration, it is one of the Connecticut towns most prone to sea-level rise, among other effects of climate change.

“The coast is particularly vulnerable to the wind impacts as a hurricane comes ashore and the possibility of storm surge with ocean waves that might be 20, 30 feet higher than usual,” said Dan Esty, a Yale professor and former commissioner of the Connecticut Department of Energy and Environmental Protection. “That puts a number of coastal properties right in the line of potential damage.”

Climate change has already imposed itself on Groton in large and small ways. Flooding has become more common. Docks have been raised as water levels have risen. Increased humidity has made summers less pleasant. The local lobster population has diminished, and the local bird populations have shifted. By the time of the 2011 study, Groton’s shoreline had already eroded dozens of yards inland since 1888.

As a result, climate change has begun to seep into public awareness in Groton, more so than in inland parts of the state. Residents in at-risk areas worry about what coastal changes will mean for their homes, while public officials from both the town of Groton and the city of Groton (two separate entities coexisting under an unusual governing structure) plot resiliency efforts.

“It used to be that if you had a hurricane or a nor’easter coming in, you had flooded streets and it was difficult to get in and out,” Paul Fox, a homeowner in a particularly low-lying neighborhood, said in October. “Now you just live your life around the tides.”



*Adam Lurch fishes from the rocks off Eastern Point along the Long Island Sound in Groton on Oct. 26 as a nor'easter was forecast to bring heavy rain and strong winds. Climate change and rising sea levels are threatening coastal towns like Groton.*

The risks are particularly serious for Groton’s most vulnerable residents. Increased heat will endanger those without air conditioning, particularly in densely populated areas. Extended power outages will be the most damaging for people with nowhere else to go. Storms will threaten residents who can’t easily evacuate.

Aundré Bumgardner, a member of the Groton Town Council and the city planning and zoning commission, points to Poquonock Bridge, a village within Groton with sizable Black and Latino populations and a median income well below that of the broader town. While residents of Groton’s wealthier neighborhoods can afford to raise their homes to guard against rising sea levels or rebuild following significant damage, renters and working-class homeowners have fewer options.

“A homeowner in Groton Long Point or Jupiter Point may have the capacity to raise their house,” Bumgardner says. “Renters may not have that ability.”

Local businesses in low-lying areas are threatened as well. In Mystic — a popular tourist village that spans Groton and Stonington — Bank Square Books owner Annie Philbrick knows all too well what a major storm can mean for her store, which sits at the bottom of a hill on the corner of West Main and Water streets, about a block from the Mystic River.

During Superstorm Sandy in 2012, a combination of high tide and an immense tidal surge proved devastating. Although employees had secured the store with sandbags, water surging from the river rose up a few feet behind the building, seeped through its doors and walls, and pooled inside the bookstore.

Philbrick and others managed to save the vast majority of the books, but in the wake of the storm, they had to “tear the entire store apart.” Walls were cut open to dry them out and all of the carpeting was ripped out. Three weeks later, the store reopened with tiled floors — in preparation for future storms.

In the decade since Sandy hit, the bookstore has thrived, expanding into a neighboring storefront. But the threat of another storm is never far from Philbrick’s mind.

“I still sort of have PTSD about it when there’s a high tide and it’s pouring rain,” she said.



*Outdoor heaters are ignited outside the Main Street Mystic’s Bank and Bridge brew pub by staff member Samantha Lugo. The bustling, historic and low-lying downtown Mystic is an area environmentalists say is threatened by the effects of climate change.*

Whenever a storm approaches, employees lay down sandbags and move merchandise off the floor. But since Philbrick doesn’t own the building, there is only so much she can do to protect against flooding.

“Climate change is real, and I don’t have a solution for downtown Mystic,” she said. “But I think people are growing more and more aware of it, and I think we’d be open to any discussions that are happening.”

Groton’s two largest employers — and two of the largest employers in all of southeastern Connecticut — are the submarine manufacturer Electric Boat and the Naval Submarine Base that sit along the

Thames. Both employ thousands of residents of Groton and surrounding towns. Both could be impacted by sea-level rise in the coming decades.

Much of the submarine base is located above the Thames River floodplain, which protects it from storm surges and sea-level rise. But some key infrastructure is on the waterfront and could be vulnerable to surge flooding, a Navy representative said. The base has already begun shoring up older waterfront buildings, installing flood gates across doorways and garage bay openings and raising electrical equipment on concrete pedestals.

A representative for Electric Boat did not respond to requests for comment.

Other key businesses face even more immediate threats. Groton-New London Airport, which does not have commercial flights but is used frequently for private transport, sits along the water at sea level and is already prone to flooding. According to NOAA's models, 20 inches of sea-level rise would imperil its runway, and more dramatic increases would submerge much of its airfield.

"We're looking at [the problem]," Kevin Dillon, executive director of the Connecticut Airport Authority, said recently. "But I can't say that we have any reasonable answers at this point as to how to address it."

### **'I'm in trouble'**

Steever, the chair of Groton's resilience and sustainability task force, stands on the deck of the Groton home he has owned since the mid-1960s and looks out onto his backyard.

Barely a football field away, Long Island Sound laps the shore. Steever points to a flower bed at the edge of his property, in the Noank section of town. That's where flood levels would reach in the event of what's classified as a 100-year storm, according to maps from the Federal Emergency Management Agency. Then he gestures downward, just below his deck. That's where the water would reach in the event of a 500-year storm.

The trouble is, climate change means 100-year storms have begun to occur more often than once every 100 years. Meanwhile, the sort of routine storms that Connecticut residents have learned to live with are becoming not only more frequent but also more intense.

This past summer may have offered a preview of what's to come. After a historically wet July, Connecticut dodged the worst of Tropical Storm Henri in late August only to be slammed days later by the remnants of Hurricane Ida. Much of the state experienced severe flooding.

"What's changed is that things that used to be not as bad as hurricanes — not devastating but impactful nonetheless, like things that occur every year or every five or 10 years — are going to occur much more frequently," says Jim O'Donnell, executive director of the Connecticut Institute for Resilience & Climate Adaptation, known as CIRCA. "My guess right now is that things that occurred maybe once every 10 years in the last 100 years, by 2050 the risk will be a factor of five higher."

Increased frequency of storms isn't Steever's only cause for concern. The FEMA maps, he notes, don't reflect projections for sea-level rise, and Connecticut's sea level is rising steadily. Already, several docks near Steever's home have had to be raised. If the water creeps up 20 inches by 2050, as CIRCA projects, it will flow that much closer to Steever's deck.

Trained as a wetlands biologist, with multiple stints in the federal government, including as a negotiator at the 1992 Earth Summit, Steever knows exactly what all of this means.

"I'm in trouble," he says.

### **'Why did anybody ever build that house?'**

While Steever has some degree of buffer between his home and the encroaching Sound, Paul Fox isn't as lucky.

After living much of his adult life in the Hartford area, Fox and his wife Mary retired to Groton in 2006 and built a large home in the Willow Point neighborhood, along Mystic Harbor. It didn't take long before they began to understand what they were up against.

"The last 10 years is when we've really recognized that the water level is really rising," Fox said. "Low tide is close to what high tide used to be."

NOAA models show that Willow Point is one of the areas of Groton most exposed to sea-level rise, and residents' experience bears that out. Already, they say, flooding in their community has gone from a periodic occurrence to a regular fact of life.

Susan Esslinger, who co-owns a summer house on Willow Point that has been in her family since the late 1930s, has watched the water begin to encroach on her property in ways it never used to.

"The water now comes up to the sea wall regularly and covers the little beach, whereas when I was younger, that was just a factor of a nor'easter or a particular storm," she said. "It was not a regular occurrence."



*In their Willow Point neighborhood, residents Scott and Susan Esslinger step over ever-present run-off from tides, rain and basements being pumped. "The water now comes up to the sea wall regularly," Susan Esslinger said.*

Fox has seen neighbors leave the area because of the flooding. He has seen others raise their homes to guard against it. And, to his bafflement, he has seen the town grant building permits along what he knows to be a significant floodplain.

Fox's house is elevated 13 feet off the ground, which keeps him dry at least for now. Even so, he questions why the town of Groton ever let him build in such a vulnerable area. At the time, he figured local officials knew best. Now, he's not so sure.

"I would have been much better off if they had said, 'This is not a good idea,'" he said. "You'll look at this place in 20 years and you'll ask, 'Why did anybody ever build that house?'"

Across town on Groton Long Point, the lone road in and out of the peninsula is lined with blue storm evacuation markers. The beachfront neighborhood is among the wealthiest in the area, with historic homes dating back to the early 20th century, and makes up a key chunk of Groton's tax base.

For years, development in low-lying areas like Groton Long Point was facilitated by a federal flood insurance system that failed to account for the increased frequency of severe storms due to climate change. That began to change in October, when FEMA unveiled a new insurance program that will use more nuanced risk assessments and **raise insurance rates for a vast swath** of coastal properties across the country, potentially making places like Groton's seaside communities more expensive.

Still, concerns about climate change do not seem to have impacted the market for waterfront properties in the area. Viviana Penson-Rodriguez, a real estate broker and owner of Groton-based Leaf Realty Group, said discussions of climate change and sea-level rise rarely come up during waterfront home purchases. For the past year and a half, she has seen "astronomical" sales of beachfront houses.

"People are just jumping into those waterfront properties," she said.

### **'Do you let it go back to nature?'**

Jupiter Point, a neighborhood in the city of Groton, is the picture of seaside dreams. Situated a few miles down the coastline from Groton Long Point, on a narrow peninsula that juts out into Baker Cove, its houses have expansive views of the water. American flags fly above garages, basketball hoops decorate streets leading to cul-de-sacs, and residents walk their dogs on cloudless days. Just down the road, regal white boats bob at the Pine Island Marina.

By the end of the century, the neighborhood could be almost entirely underwater.

According to NOAA's projections, the 20 inches of sea-level rise expected by 2050 would submerge the far tip of Jupiter Point, sinking a private beach and threatening low-lying houses. The 2 meters — about 6 1/2 feet — of sea-level rise possible by 2100 would wipe out nearly the whole community.

City of Groton Mayor Keith Hedrick is not optimistic about Jupiter Point's future. A 62-year-old Republican-turned-Democrat, Hedrick said he doesn't like to talk about "global warming" because he considers the term too divisive. But he can't deny the inexorable approach of the water.

"I have read scientific papers that have said we're going to get up to 20 inches of water in 30 years," he says. "That's all I care about."

So far, officials have identified key questions the city of Groton will face in the decades to come but have answered few of them. For now, Hedrick says his office is waiting for the results of a **Community**



**Resiliency Plan**, which will include a climate change risk assessment and recommendations on how to best protect vulnerable areas.

Hedrick admits he isn't sure what to do about places like Jupiter Point. Should homeowners who build in flood zones be allowed to rebuild after a damaging storm? If they do rebuild, should they be required to raise the height of their home? And, crucially, who pays?

"I don't know the answer for Jupiter Point, honestly," he says. "At some point, somebody is going to need to ask the hard question. I don't know if it's going to be me under my administration or somebody else, but we need to ask it: Do you let it go back to nature?"



*City of Groton Mayor Keith Hedrick said he doesn't like to talk about "global warming" because he considers the term too divisive. But he can't deny the inexorable approach of the water.*

At her office in Groton's municipal building, city planner Leslie Creane keeps a striking image as her computer desktop background: a house on stilts, raised up at least 15 feet. She took the photo a few years ago in Biloxi, Miss., a city on the Gulf of Mexico, and now shows it to people as an example of a place that is already changing rapidly due to climate change. She says it serves as a warning for Groton.

"There needs to be a very disciplined way of looking at what we want our goals to be," she said. "Do we want people to be able to live here, on the same property as their families, in perpetuity? In which case, there's an awful lot of expensive infrastructure work that's going to have to get done and then redone and done on top of what gets done."

Creane says climate change will raise a host of "very, very personal and very, very complicated" conversations in the years to come, including about the temporary or even permanent resettlement of residents of Groton's most vulnerable areas.

"We're going to be moving inland," she said. "So to the extent that Groton is right on the water — I don't think that that's going to be anytime really soon — but 30, 40 years from now? Sure."

Syma Ebbin, a professor of environmental policy and environmental science at UConn Avery Point, has had family on Jupiter Point for decades and has lived there herself since 1999, watching as the water

risers and flooding becomes more frequent. Even so, she says, not all her neighbors seem to grasp what they're up against.

"There's a repetitive quality [to the flooding] that helps with getting people believing," she said recently. "But there's still a new house going up right here on my block, so obviously there are some people who are not believing or acting in accordance with potential threats."

### **'We have to do something'**

At the national level, climate activism means a movement to reduce greenhouse gas emissions and allocate billions of dollars to resiliency efforts. At the state level, it has meant advocating for policies like the Transportation and Climate Initiative, a multistate proposal aimed at cutting emissions and investing in green transportation that stalled in the state legislature this spring.

Locally, in Groton, climate activism has meant the formation of a resilience and sustainability task force, assembled in 2019 by environmentalists frustrated by a decade of inaction from local officials. The goal, task force members say, is to generate specific plans to reduce Groton's carbon footprint and prepare for climate change impacts.

To reduce emissions in Groton, task force members say they hope to see a phased replacement of public vehicles with electric cars and incentives for the construction of solar panel arrays.

To prepare for rising sea levels and more frequent storms, they are exploring various short-term responses. Could Groton use scheduled repavings as an opportunity to raise road elevations? Can the town begin discouraging new development in areas most prone to sea-level rise? How can state and federal funds be mobilized to help homeowners elevate their homes, away from the reach of the water?

Task force members say public awareness of climate change's devastating immediacy — as well as the political will to enact change — is growing. For many Connecticut residents, seeing skies hazy from California fires and confronting drought, flooding and storms in their own towns has caused the reality of climate change to hit home.

"We've really come to a point where the potential for action is much, much better," said Bohlen, the retired UConn professor.



*Town of Groton officials and members of Groton's Resilience and Sustainability Task Force, led by Zell Steever (foreground) fan across Steever's backyard, in a demonstration of the increased threat of flooding due to climate change. In the event of a 100-year storm, water would reach the edge of Steever's property, and in the event of a 500-year storm, it would flood up to where he stands, according to FEMA projections.*

To Mickey Weiss, a task force member, the core tension of climate change is no longer between environmentalists and climate deniers. It's now a financial tug-of-war, playing out in the U.S. Congress, where lawmakers are currently debating how much money to allot to fighting climate change, as well as locally, in towns like Groton.

"Everybody says, 'OK, climate change is real,'" says Weiss, founding director of Project Oceanology, a nonprofit marine sciences facility in Groton. "And they're all saying, 'But we can't afford to do anything about it, or the economy is going to take a hit if we do something about it.' That's where I think the current battle is: to make sure people understand that in the long run, we're going to save money by taking action now."

Earlier this year, Groton's Town Council **passed a resolution** to "address climate change, resiliency and sustainability as a central management principle for all actions by the town government." The resolution affirms that climate change is a growing threat that has already impacted Groton and commits the Town Council to "becoming a leader in combating climate change and becoming a more sustainable community."

One of their first steps: hiring a resilience and sustainability manager, a process town officials say will begin soon.

The residents who built clapboard houses on the banks of the Mystic River nearly 200 years ago couldn't have known that climate change would one day bring the ocean to their doorsteps. Today, Groton officials say, the town must show that it knows better.

"We have to do something," says Patrice Granatosky, the mayor of the town of Groton. "We can't keep sitting on it and not take any action."

# The New York Times

## Billions for Climate Protection Fuel New Debate: Who Deserves It Most

December 3, 2021  
Christopher Flavelle

WASHINGTON — The [new infrastructure law](#) signed by President Biden includes almost \$50 billion to protect communities against climate change, the largest such investment in United States history and a recognition that the effects of warming [are outpacing](#) America’s ability to cope.

Mr. Biden has insisted that [at least 40 percent](#) of the benefits of federal climate spending will reach underserved places, which tend to be low income, rural, communities of color, or some combination of the three.

But historically, it is wealthier, white communities — with both high property values and the resources to apply to competitive programs — that receive the bulk of federal grants. And policy experts say it’s unclear whether, and how quickly, federal bureaucracy can level the playing field.

“These tensions have to be squarely faced,” said Xavier de Souza Briggs, a senior fellow at the Brookings Institution who volunteered on Mr. Biden’s transition team. The White House “is trying to transform some of these deep structures of government that have needed attention for a long, long time,” he said.

Some local governments have tried to distribute money for climate resilience in a more equitable manner. But the [political backlash can be fierce](#).

After Hurricane Harvey devastated Houston in 2017, voters approved a \$2.5 billion bond to fund more than 500 flood-control projects around the county. Officials decided to prioritize those projects based in part on the “social vulnerability” of the communities they protected — an index that includes the percentage of residents who are minorities.

Residents in wealthier neighborhoods, along with their elected representatives, complained the policy would push their communities to the back of the line.

The new climate provisions in the infrastructure bill inject billions of dollars into competitive grant programs. These are pots of money that towns, cities and counties can access only by submitting applications, which federal agencies then rank, with funds going to applicants with the highest scores.

That system is designed to ensure that funding goes to the most worthwhile projects.

But it also hinges on something outside the control of the federal government: The ability of local officials to use sophisticated tools and resources to write successful applications. The result is a process that has widened the gap between rich communities and their less affluent counterparts, experts say.

The disparity begins even before the application process begins. That's because local governments must be aware of the grant programs in the first place, which means having dedicated staff to track those programs. Then they need to design proposals that will score highly, and correctly complete the reams of required paperwork.

Even if they are awarded a grant, communities are required to pay a share of the project — often 25 percent, which is unaffordable for many struggling towns and counties.

Governments that can clear those obstacles face a final hurdle: Demonstrating that the value of the property that would be protected is greater than the cost of the project. That rule often excludes communities of color and rural areas, where property values are usually lower than in white communities.

"We have counties and municipalities that do not have the institutional capacity to participate in this alphabet list of programs that the federal government has created for hazard mitigation and climate adaptation," said Jesse Keenan, a professor at Tulane University who focuses on how governments try to cope with global warming.

During a [virtual meeting in October](#), advocates challenged senior White House officials to explain how they would fulfill their promises of racial equity, given the history of federal grant programs.

"It's one thing to have an idea of how to build back better," said Beverly Wright, founder and executive director of the Deep South Center for Environmental Justice. "But if the people who need it the most can't afford it, what good is it?"

Yoca Ardit-Rocha is executive director of the CLEO Institute, a nonprofit group in Florida that promotes climate change education, advocacy and resilience, especially for low-income communities.

"The price tag to adapt to the significant climate risk our communities are facing is truly enormous," she said. "To build back better, the federal government cannot leave behind communities like my own."

Officials conceded the challenge, and said they were looking for ways to address it, without giving specifics. "We're very aware that this is an issue that needs work," said Candace Vahlsing, associate director for climate at the White House Office of Management and Budget.

The consequences of the current approach were on display this past summer, when the Federal Emergency Management Agency named the first round of [likely winners](#) under a new climate-resilience grant program, funding projects to address future risks from flooding, wildfires and other hazards.

The Biden administration has touted the program, called Building Resilient Infrastructure and Communities, or BRIC, as a model that should be expanded. The infrastructure bill provides billions more to the program.

But most of the first round winners were wealthy, predominantly white areas in a [handful of coastal states](#), federal data show.

More than half the money went to California, New Jersey and Washington State. The largest single recipient was a \$68 million flood-control project in Menlo Park, Calif., where the median household income is more than \$160,000, the typical home costs more than \$2 million and only one in five residents are Black or Hispanic. The project is in line to get \$50 million from FEMA.

By contrast, FEMA rejected applications from places like Smithland, Ky., a town of just 240 people where the Cumberland and Ohio Rivers meet, halfway between St. Louis and Nashville. The town sought \$1.4 million to build a levee along the riverbank, which has crested at flood levels three times in the past 10 years.

“That’s a lot of money for us,” said Garrett Gruber, the top elected official in Livingston County, which includes Smithland.

But he said the cost for the barrier, though large compared with the value of the houses it would protect, would be less expensive than erecting temporary barriers every time the river crests.

“If this grant doesn’t qualify, then I’m not sure what would,” Mr. Gruber added. “It’s almost as if you would rather me just evacuate the city.”

The rules that governed the first round of BRIC awards were set under the Trump administration. A senior official in the Biden administration, who spoke on condition that he not be identified by name, noted that the rules for the next round of awards have been changed, giving extra points for applications that cite benefits for disadvantaged communities.

That’s part of the Biden administration’s “Justice 40” initiative, which calls for disadvantaged communities to receive the “overall benefits” of 40 percent of climate dollars, as defined and calculated by each federal agency. The initiative does not require a specific portion of climate funding be spent in underserved communities.

Republican lawmakers who oversee federal disaster funding declined to discuss the Biden administration’s new approach. Representative Sam Graves of Missouri, the top Republican on the House Transportation and Infrastructure Committee, declined to comment through a spokesman. A spokeswoman for Senator Kevin Cramer of North Dakota, the top Republican on the Senate subcommittee responsible for infrastructure, didn’t respond to a request for comment.

The new rules for the FEMA program define disadvantaged communities broadly, to reflect [one or more of 15 suggested criteria](#). They include persistent poverty; racial segregation; high costs for housing, transportation, energy or water; “linguistic isolation”; job losses related to the transition away from fossil fuels; “disproportionate impacts from climate”; or even limited access to health care.

And to be successful, communities must still demonstrate that their infrastructure projects would save more money than they would cost, the same criteria that makes it hard for climate resilience projects in low-income communities to get approved.

One way to help small or low-income communities would be to draw from history, according to Ellory Monks, who runs a website called [The Atlas](#), where local officials can share information.

Ms. Monks has called for the federal government to [recreate a version of circuit riding](#), in which judges traveled between small towns during the 1800s. Federal agencies would assign staff to work and live in towns or counties for a period, to help local leaders devise resilience projects and then apply for funding.

“You just can’t do that from D.C.,” Ms. Monks said.

If the government really wants to help disadvantaged communities become more resilient to climate change, it should move away from competitive grant programs altogether and instead decide which communities need help, then provide it directly, according to Carlos Martín, a fellow at Brookings.

“Places that we know have high exposure to climate-related effects, and that have low wealth,” Mr. Martín said. “These are easy criteria we could set up.”

Whatever approach it uses, the Biden administration must rethink who gets climate resilience money, said Ms. Arditi-Rocha of the CLEO Institute. “What is most important?” she said. “Protecting property values, or protecting the lives of people?”

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