CONNECTICUT GREEN BANK SM

Board of Directors

Meeting Date

June 24, 2022

Board of Directors

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

75 Charter Oak Avenue, Suite 1 - 103, Hartford, CT 06106
T 860.563.0015
ctgreenbank.com

CONNECTICUT
GREEN BANK

June 17, 2022

Dear Connecticut Green Bank Board of Directors:

We have a meeting of the Board of Directors scheduled for **Friday, June 24, 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 April 22, 2022
    - Less than $500,000 and No More in Aggregate than $1,000,000
    - Request to extend Groton Subbase Fuel Cell Park project through June 30, 2022

    You will note that also included is Inclusive Prosperity Capital's progress to targets memo through Q3 of FY22 and some recent public comments we submitted to the DOE on revolving loan funds.

- **Legislative Session Review** – we will provide an update on what transpired during the 2022 legislative session, including our chairing of the Hydrogen Study Task Force in FY23.

- **Committee Recommendations** – the Budget, Operations and Compensation Committee ("BOC Committee") will recommend the approval of FY23 targets, budget, and investments. And, through the Audit, Compliance, and Governance Committee ("ACG Committee"), we will provide an overview of a quarterly report we intend to provide starting in FY23.

- **Incentive Program Updates and Recommendations** – with our administration of the Energy Storage Solutions program, and specifically the upfront incentive for non-residential systems, we will be presenting a process for the staff review and approval of reservation of funds and confirmation of funds letters for projects with incentives over $500,000. The Board materials will be coming in Board Effect by the close of business on Tuesday, June 21, 2022.

- **Investment Updates and Recommendations** – to continue to maintain our options for working capital, we will propose the renewal of our SHREC line of credit. The Board materials will be coming in Board Effect by the close of business on Tuesday, June 21, 2022.

- **Environmental Infrastructure Program Update** – we will provide an update on the status of stakeholder engagement and our strategic retreat. Included in the materials is another sample stakeholder engagement and research report, except this time it is for "parks and recreation" so

you can see how we are assembling this feedback. And for those who attended the strategic retreat, if you can be prepared to say a few things that you observed that would be great!

- **Other Business** – we will leave this open for those who want to speak, but we will cover how we are approaching federal and foundation grants and the progress we are making.

Until next Friday, enjoy the weekend ahead.

Sincerely,

Bryan Garcia
President and CEO

AGENDA

Board of Directors of the
Connecticut Green Bank
75 Charter Oak Avenue, Suite 1-103
Hartford, CT 06106

Friday, June 24, 2022
9:00 a.m.– 11:00 a.m.

Dial (312) 757-3121
Access Code: 802-515-221

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. 2022 Legislative Session in Review – 15 minutes

    a. Legislative Session
    b. Hydrogen Study Task Force

5. Committee Recommendations and Updates – 30 minutes

    a. Budget, Operations, and Compensation Committee – 15 minutes

        i. Proposed FY 2023 Targets, Budget, and Investments

    b. Audit, Compliance, and Governance Committee – 15 minutes

        i. Draft Quarterly Reports

6. Incentive Programs Updates and Recommendations – 15 minutes

    a. Energy Storage Solutions – Upfront Incentives Greater than $500,000

7. Investment Updates and Recommendations – 10 minutes

    a. SHREC Line of Credit Renewal

8. Environmental Infrastructure Updates and Recommendations – 15 minutes

   a. Stakeholder Engagement
   b. Strategic Retreat
   c. Comprehensive Plan

9. Other Business – 15 minutes

10. Adjourn

Join the meeting online at https://global.gotomeeting.com/join/802515221

Or call in using your telephone:
Dial +1 (312) 757-3121
Access Code: 802-515-221

Next Regular Meeting: Friday, July 22, 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, Suite 1-103
Hartford, CT 06106

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Dial (312) 757-3121
Access Code: 802-515-221

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1. Call to order

2. Public Comments – 5 minutes

3. Consent Agenda – 5 minutes

Resolution #1

Motion to approve the meeting minutes of the Board of Directors for April 22, 2022.

Resolution #2

WHEREAS, on January 18, 2013, the Connecticut Green Bank (the "Green Bank") Board of Directors (the "Board") authorized the Green Bank staff to evaluate and approve funding requests less than $300,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Green Bank Comprehensive Plan, approved within Green Bank's fiscal budget and in an aggregate amount not to exceed $500,000 from the date of the last Deployment Committee meeting, on July 18, 2014 the Board increased the aggregate not to exceed limit to $1,000,000 ("Staff Approval Policy for Projects Under $300,000"), on October 20, 2017 the Board increased the finding requests to less than $500,000 ("Staff Approval Policy for Projects Under $500,000"); and

WHEREAS, Green Bank staff seeks Board review and approval of the funding requests listed in the Memo to the Board dated June 24, 2022 which were approved by Green Bank staff since the last Deployment Committee meeting and which are consistent with the Staff Approval Policy for Projects Under $500,000;

NOW, therefore be it:

RESOLVED, that the Board approves the funding requests listed in the Memo to the Board dated June 24, 2022 which were approved by Green Bank staff since the last Deployment Committee meeting. The Board authorizes Green Bank staff to approve funding requests in accordance with the Staff Approval Policy for Projects Under $500,000 in an aggregate amount to exceed $1,000,000 from the date of this Board meeting until the next Deployment Committee meeting.

Resolution #3

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 on a number of occasions, including in April 2022 to June 30, 2022;

WHEREAS, Green Bank staff has further advised the Board that the closing for the Credit Facility is expected to close in early July 2022 and to accommodate the additional time that might be needed to execute the Credit Facility requests the permitted time to execute the credit facility be increased from not later than 559 days from the original date of authorization by the Board (June 30, 2022) to not later than 590 days from the date of authorization by the Board (i.e., to July 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 590 days from the original date of authorization by the Board (i.e., not later than July 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. 2022 Legislative Session in Review – 15 minutes

    a. Legislative Session
    b. Hydrogen Study Task Force

5. Committee Recommendations and Updates – 30 minutes

    a. Budget, Operations, and Compensation Committee – 15 minutes

        i. Proposed FY 2023 Targets, Budget, and Investments

Resolution #4:

WHEREAS, pursuant to Section 5.2.2 of the Connecticut Green Bank (Green Bank) Bylaws, the Budget, Operations and Compensation Committee (BOC) is charged with the review and approval of, and in its discretion recommendations to the Board of Directors (Board) regarding the annual budget and staffing plan for the organization;

WHEREAS, Connecticut Green Bank (Green Bank) staff have reviewed with the Budget, Operations, & Compensation (BOC) Committee the Fiscal Year 2023 Targets and Budget; and

WHEREAS, the Budget, Operations, and Compensation Committee discussed staff entering into new or extending existing professional services agreements (PSAs) with the following, contingent upon a competitive bid process having occurred in the last three years:

I. Adnet Technologies, LLC
II. Clean Power Research, LLC
III. Alter Domus (formerly Cortland)
IV. CSW LLC
V. Inclusive Prosperity Capital
VI. AlsoEnergy LLC
VII. DNV (includes what was formerly ERS)
VIII. Guidehouse (formerly Navigant)
IX. Novasource (f.k.a. SunSystem Technology - SST)
X. PKF O'Connor Davies
XI. C-TEC Solar, LLC

XII. Stark Raving
XIII. Kevala Analytics

For fiscal year 2023 with the amounts of each PSA not to exceed the applicable approved budget line item

NOW, therefore be it:

RESOLVED, that Green Bank Board of Directors hereby approves: (1) the FY 2023 Targets and Budget, and (2) the PSAs with the 13 strategic partners listed above

b. Audit, Compliance, and Governance Committee – 15 minutes

i. Draft Quarterly Reports

6. Incentive Programs Updates and Recommendations – 15 minutes

a. Energy Storage Solutions – Upfront Incentives Greater than $500,000

Resolution #5:

WHEREAS, the Connecticut Green Bank ("Green Bank") was appointed Co-Administrator to the Energy Storage Solutions (ESS) Program ("Program") by PURA pursuant its Final Decision, within docket Docket No. 17-12-03RE0 (PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage) on July 28, 2021;

WHEREAS, the Program responsibilities of the Green Bank established by the July 28, 2021 Final Decision, include customer enrollment, upfront incentive administration, communication and promotion of the Program, and data aggregation and publication;

WHEREAS, the Green Bank proposes to administer the upfront incentive payments as through (i) the issuance of a Reservation of Funds (ROF) letter, provided to the project developer and customer upon verification that the Battery Energy Storage System (BESS) meets the minimum technical requirements necessary to participate in the Program, including equipment roundtrip efficiency and warranty, ability to comply with passive and active dispatch modes, and demonstrated ability to communicate with the dispatch platforms; (ii) the issuance of a Confirmation of Funds (COF) letter upon the completed installment of all equipment, the procurement of required utility permits, and the verification of connectivity with dispatch platforms;

WHEREAS, residential projects with an estimated upfront incentive payment not equal to or greater than $500,000 shall be approved by Green Bank staff and upon approval be issued a ROF letter; and, for a non-residential project with an estimated upfront incentive payment greater than or equal to $500,000, the Green Bank shall prepare a curated proposal to the Board for approval, per the bylaws of the Green Bank;

WHEREAS proposals for projects with an estimated upfront incentive payment equal to or greater than $500,000 shall include a Tear Sheet outlining customer, project, and site information; priority customer eligibility criteria, BESS characteristics, ratepayer and societal benefits generated by the program as represented by benefit-cost analysis ratios, and information related to the estimated upfront incentive payment;

WHEREAS, within the existing Board and Deployment Committee regular meeting schedule, the Green Bank staff shall seek Board approval of non-residential projects with estimated upfront incentive payments equal to or greater than $500,000 via consent agenda, and, upon approval by the Board, Green Bank staff shall issue ROF letters to the project developer and customer;

WHEREAS, after projects are fully operational, Green Bank staff shall notify the Board of their intent to issue COF letters, and, and as necessary, provide an analysis and explanation for any differential between a approved estimated upfront incentive payment and the final incentive amount.

NOW, therefore be it:

RESOLVED, that the Board hereby approves the Green Bank's administration of upfront incentive payments as set forth in the memorandum to the Board dated June 24, 2022;

RESOLVED, that the Board hereby approves that upfront incentive payments under $500,000, as estimated by the Green Bank in fulfillment of its responsibilities set forth in the Program, be issued a ROF letter upon approval by internal Green Bank staff;

RESOLVED, that the Board hereby approves the implementation of an Upfront Incentive Project Approval procedure ("Procedure") involving of the issuance of a proposal for non-residential projects under consideration by the Green Bank in fulfillment of its responsibilities set forth in the Program with an estimated upfront incentive payment greater than $500,000;

RESOLVED, that as part of the Procedure, the Board hereby approves that Green Bank staff shall obtain Board approval of such estimated upfront incentive payments via consent agenda utilizing the Tear Sheet process described in the memorandum to the Board dated June 24, 2022; and,

RESOLVED, that as part of the Procedure, Green Bank staff shall notify the Board of intent to issue a COF letter for an approved Program-implemented, non-residential project with an upfront incentive payment equal to or greater than $500,000, upon such project's compliance with the minimum technical requirements as set forth in the memorandum to the Board dated June 24, 2022.

7. Investment Updates and Recommendations – 10 minutes

    a. SHREC Line of Credit Renewal

Resolution #6

WHEREAS, the Company intends to enter into a Third Amendment to Credit Agreement (the "**Third Amendment**"), which amends the Credit Agreement dated as of July 31, 2019, as amended by that certain First Amendment to Credit Agreement and Other Loan Documents dated July 28, 2020 and by that certain Second Amendment to the Credit Agreement and Other Loan Documents dated July 30, 2021 (collectively, the "**Credit Agreement**") with Webster Bank, National Association ("**Webster**"), as Administrative Agent (in such capacity, as "**Agent**") and as a lender and Liberty Bank, as Lead Arranger and as a lender (Webster and Liberty Bank, in their capacities as lenders, are referenced to herein collectively as, "**Webster-Liberty**"), whereby Webster-Liberty have made available to the Company a Five Million and 00/100 Dollar ($5,000,000) secured revolving line of

credit, with a Five Million and 00/100 Dollar ($5,000,000) uncommitted accordion feature ("**Loan**") for the purpose of financing the Tranche 5-2021 and Tranche 6-2022 (as defined in the Credit Agreement) Solar Home Renewable Energy Credit program ("**Tranche 5-2021 SHRECs**" and "**Tranche 6-2022 SHRECs**" respectively); and

WHEREAS, the Company and Green Bank have requested that Webster-Liberty and Agent modify the Loan and the terms of the Credit Agreement pursuant to the Third Amendment, in order to, among other things, secure the Loan with the Tranche 6-2022 SHRECs as collateral and extend the term of the Loan; and

WHEREAS, in connection with the modification of the Loan, the Company and Green Bank, as applicable, shall also enter into those documents listed on Exhibit A attached hereto (collectively, the "**Modification Documents**"); and

WHEREAS, to induce Webster-Liberty to continue to extend the Loan to the Company, Green Bank shall continue to guarantee the Loan pursuant to the Guaranty Agreement dated as of July 31, 2019 made by Green Bank in favor of Agent (the "**Guaranty**"); and

WHEREAS, along with a general repayment obligation by the Company, Agent and/or Webster-Liberty are secured by, and the Company and the Green Bank are authorized to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty (i) a first priority security interest in all assets of the Company, (ii) a collateral assignment of and security interest in all of the Company's and the Green Bank's right, title and interest in the Tranche 5-2021 SHRECs and Tranche 6-2022 SHRECs and all rights and obligations relating thereunder under those certain Master Purchase Agreements for the Purchase and Sale of Solar Home Renewable Energy Credits by and between the Green Bank and each of The Connecticut Light & Power Company d/b/a Eversource Energy and The United Illuminating Company each dated February 7, 2017, each as amended by those certain First Amendments, dated July 30, 2018, as further amended by those certain Second Amendments, dated April 1, 2020, (as further amended from time to time, the "**MPAs**"), which collateral assignment and security interest shall include any and all rights to payment of money under the MPAs with respect to Tranche 5-2021 and Tranche 6-2022 SHRECs and those other attributes and rights associated with the Tranche 5-2021 and Tranche 6-2022 SHRECs, (iii) a collateral assignment of all of the right, title and interest in that certain Sale and Contribution Agreement by and between Green Bank and the Company, dated as of the date of the closing of the Loan, including without limitation, any security interest created under the Sale and Contribution Agreement, and (iv) a security interest in the MPA Collection Account, the Webster Interest Reserve Account and the Liberty Interest Reserve Account (the security interests listed in (i)-(iv) hereof, together, the "**SHREC Collateral**"); and,

WHEREAS, Webster-Liberty has requested and the staff of Green Bank has recommended that the Board provide these resolutions approving the renewal and extension of the Loan and the Green Bank's guarantee thereof in accordance with the terms of the Third Amendment.

NOW, therefore be it:

RESOLVED, that the Board of the Green Bank hereby authorizes, ratifies and approves the Loan, as modified, from Webster-Liberty to the Company pursuant to the terms of the Third Amendment and the Modification Documents and authorizes, ratifies, directs and approves the Company's and the Green Bank's entering into the Third Amendment and the Modification Documents to which it is a party and of each other contract or instrument to be executed and delivered by the Company and the Green Bank in connection with the transactions contemplated by the Third Amendment; and be it further

RESOLVED, that the Board of the Green Bank hereby reauthorizes, ratifies and reaffirms the Green Bank's obligations under the Guaranty; and be it further

RESOLVED, that each of the Company and the Green Bank be and it hereby is, authorized to continue to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty a first priority security interest in and to the Company's property, including, without limitation the SHREC Collateral; and be it further

RESOLVED, that the Board hereby authorizes, directs, ratifies and approves Green Bank's and the Company's execution, delivery and performance of the Third Amendment and the other Modification Documents and all of the Green Bank's and the Company's obligations under the Third Amendment and the other Modification Documents; and be it further

RESOLVED, that the actions of Bryan Garcia in his capacity as the President and Chief Executive Officer of Green Bank ("**Garcia**"), Roberto Hunter in his capacity as the Chief Investment Officer of Green Bank ("**Hunter**") and Brian Farnen in his capacity as General Counsel and Chief Legal Officer of Green Bank ("**Farnen**"; and together with Garcia and Hunter, each an "**Authorized Signatory**"), are hereby ratified and approved with regard to the negotiation, finalization, execution and delivery, on behalf of Green Bank and the Company, of the Third Amendment and the other Modification Documents and any other agreements that they deemed necessary and appropriate to carry out the foregoing objectives of Green Bank and/or the Company, and any other agreements, contracts, legal instruments or documents as they deemed necessary or appropriate and in the interests of Green Bank and/or the Company in order to carry out the intent and accomplish the purpose of the foregoing resolutions are hereby ratified and approved; and be it further

RESOLVED, that the Authorized Signatories be, hereby are, acting singly, authorized, empowered and directed, for and on behalf of the Green Bank and the Company (in the Green Bank's capacity as the sole member of the Company), to execute and deliver the Third Amendment and the other Modification Documents; and be it further

RESOLVED, that any other actions taken by any Authorized Signatory are hereby approved and ratified to the extent that such Authorized Signatory or Authorized Signatories have deemed such actions necessary, appropriate and desirable to effect the above-mentioned legal instrument or instruments.

8. Environmental Infrastructure Updates and Recommendations – 15 minutes

    a. Stakeholder Engagement
    b. Strategic Retreat
    c. Comprehensive Plan

9. Other Business – 15 minutes

10. Adjourn

Join the meeting online at https://global.gotomeeting.com/join/802515221

Or call in using your telephone:
Dial +1 (312) 757-3121
Access Code: 802-515-221

Next Regular Meeting: Friday, July 22, 2022 from 9:00-11:00 a.m.
Colonel Albert Pope Room at the
Connecticut Green Bank, 75 Charter Oak Avenue, Suite 1-103, Hartford, CT 06016

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

June 24, 2022

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 #3

1. **Meeting Minutes** – approve meeting minutes of April 22, 2022
2. **Less than $500,000 and No More in Aggregate than $1,000,000** – staff approval of 2 C-PACE transactions totaling approximately $473,000
3. **Groton Subbase FuelCell Energy Project** – extension of time to close the project by July 31, 2022

- **Progress to Targets** – update on IPC progress to targets through Q3 of FY22
- **Public Comments** – submitted to DOE on revolving loan funds

CONNECTICUT GREEN BANK

Board of Directors

Agenda Item #4a

2022 Legislative Session in Review

Legislative Update

- **PA 22-6 C-PACE**
  - Enables climate resilience and EV charger projects
- **PA 22-14 Clean Energy Tariffs**
  - Doubles NRES and SCEF program caps, larger project sizes
- **PA 22-5 Zero-Carbon Electric Sector by 2040**
- **SA 22-8 Hydrogen Task Force**
  - Connecticut Green Bank (Chair)
- **PA 22-55 EDC Storage and Reliability**
  - Grid-side storage pilots, 3 per EDC
- **HB-5020 Exempting New Nuclear from Moratorium**
  - Intended for small future small modular

Legislative Update

PA 22-25 CT Clean Air Act

- **Electrification targets for state fleet, transit and school buses, target EJ communities**
- **Longer contracting allowed for ESBs**
- **RGGI over-average collections go to EV incentives (i.e., vouchers for electric school buses)**
- CHEAPR covers e-bikes, and more rebates available for towns, businesses, NGOs
- Matching grant program for medium/heavy-duty vehicles
- Adopts CA MHDV standards
- Common interest property policies for EV charging, solar PV
- New construction standards for EV charging
- Property tax exemptions for chargers

HB-5506 State Budget Implementer

- Funds for school bus electrification, IIJA-related programs, medium/heavy duty ZEV vouchers with EJ focus
- Dept. Agriculture climate resilience grants
- RPS changes to support Class II market for sustainable materials management

Board of Directors

Agenda Item #4b

Hydrogen Study Task Force

Connecticut Industry

Hydrogen and Fuel Cells

CONNECTICUT GREEN BANK

Connecticut Hydrogen-Fuel Cell Coalition

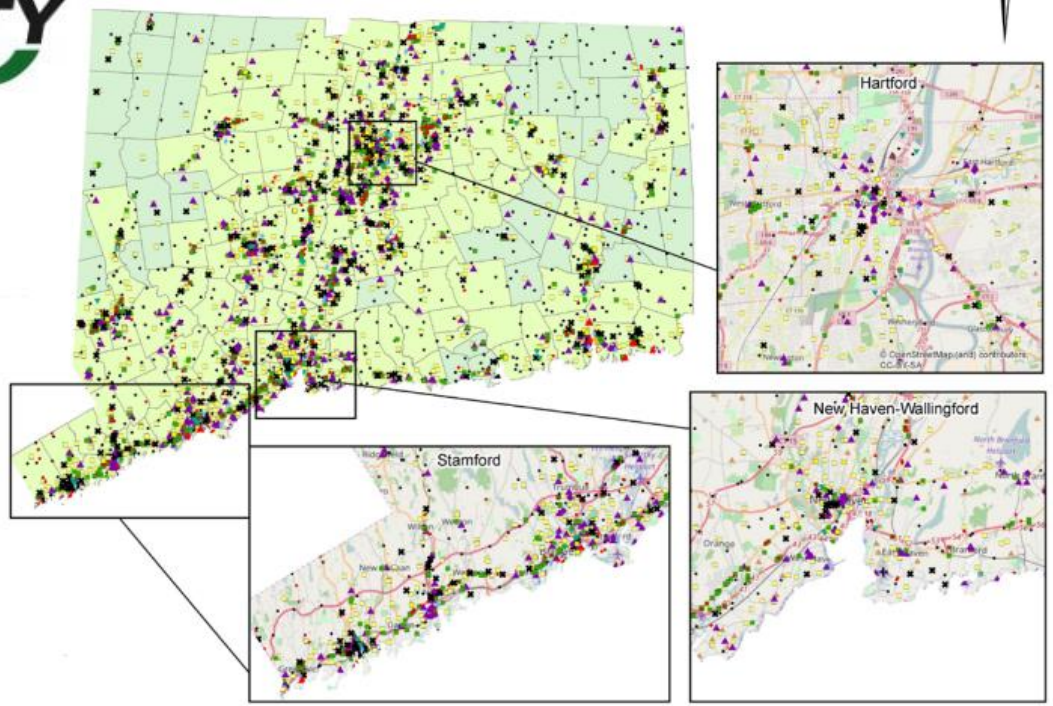
Connecticut Center for Advanced Technology, Inc.

CENTER FOR CleanEnergy ENGINEERING
UNIVERSITY OF CONNECTICUT

INFINITY™

SKYRE

PCI
Precision Combustion, Inc.



FuelCell Energy

HyAxiom
A Doosan Company

PROTON
PART OF nel
ON SITE

Special Act 22-8
Background

- **Overview** – establishes a task force to study hydrogen-fueled energy in the state's economy and energy infrastructure
- **Composition** – identifies ex officio and political appointed members to the task force
- **Deliverable** – not later than January 15, 2023, the task force shall submit a report on its findings and recommendations to the Energy & Technology Committee

Task Force

Appointed and **Ex Officio** Membership

- **President of the Connecticut Green Bank (Chair of Task Force)**
- 6 representatives from EDCs (4 electric, 2 gas)
- Representative from a nuclear power generating facility
- Representative of the building trades
- 3 representatives of CT manufacturers of hydrogen-fueled energy technology
- 3 representatives of environmental organizations that advocate for renewable energy
- 2 members of the CT Hydrogen-Fuel Cell Coalition
- **Chairperson of PURA (or designee)**
- **Commissioner of DEEP (or designee)**
- **President of the University of Connecticut (or designee)**
- **Director of energy initiative at the Connecticut Center of Advanced Technology**

Special Act 22-8
Areas to Address

1. **A review of regulations and legislation needed to guide the development and achievement of economies of scale for the hydrogen ecosystem in the state**
2. Recommendations for workforce initiatives to prepare the state's workforce for hydrogen-fueled energy-related jobs
3. An examination of how to position the state to take advantage of competitive incentives and programs created by the federal Infrastructure Investment and Jobs Act
4. Recommendations for funding and tax preferences for building hydrogen-fueled energy facilities at brownfield sites through the Targeted Brownfield Development Loan program*
5. Recommendations regarding funding sources for developing hydrogen-fueled energy programs and infrastructure
6. **An examination of the sources of potential clean hydrogen, including, but not limited to, wind, solar, biogas and nuclear**
7. **Recommendations for potential end uses of hydrogen-fueled energy**

- **Additional areas of study** (e.g., engagement of environmental justice communities, Defense Production Act, etc.) identified by RFP submitters and members of the task force

*The Green Bank will provide legal counsel to support the contractor selected through this RFP

Board of Directors

Agenda Item #5a

Budget, Operations, and Compensation Committee

FY 23 Targets, Budget, and Investments

Connecticut Green Bank

FY 2023 Targets – Incentive Programs

Segment	Program		Targets		
			Number of Projects	Total Capital Deployed	Capacity Installed/ Nameplate Capacity
Incentive Programs	ESS (C&I)	*C&I Storage Incentives Total*	0	0	0
	ESS (Residential)	Total Battery Storage	500	$20,000,000	7.6
	Smart-E	Total Smart-E	960	$14,994,623	0.2
	Incentive Programs Total		1,460	$34,994,623	7.8

In FY 2023, the Connecticut Green Bank will support **$34.9 MM in investment** through Incentive Programs for **1,460 projects** that deploy **7.8 MW of clean energy,** annually avoiding **6,554 TCO_2,** and create **181 direct, indirect, and induced job years**

Connecticut Green Bank

FY 2023 Targets – Financing Programs

Segment	Product	Channel	Targets		
			Number of Projects	Total Capital Deployed	Capacity Installed
Financing Programs	CPACE	Total CPACE	23	$31,000,000	0.0
	PPA/RoofLeases	Total PPA	19	$13,710,000	7.6
	SBEA		839	$18,600,000	
	Multi-Family Pre-Dev		0	$0	0.0
	Multi-Family Term	Total Multi-Family Term	6	$1,380,000	0.6
	Multi-Family Health and Safety Total		1	$892,500	
	Transportation	Total Transportation	0	0	0
	Strategic Investments	Total Strategic Investments	0	$0	0.0
	Financing Programs Total		882	$ 64,202,500	7.6

In FY 2023, the Connecticut Green Bank will support **$64.2 MM in investment** through Financing Programs for **882 projects** that deploy **7.6 MW of clean energy,** annually avoiding **48,073 TCO_2,** and will create **566.4 direct, indirect, and induced job years.**

Connecticut Green Bank

FY 2023 Budget

- **Revenues – Net YOY Increase of $2.59 Million**
  - Increased RGGI proceeds & REC sales offset by decrease in Utility Customer Receipts.
- **Operating Expenses – Net YOY Increase of $529K**
  - Increase in personnel opex of $1.9M ($266K for Merit from FY22, $318K in COLA for FY 23, $608K for open and new positions)
  - Incentive Programs non-personnel opex decrease driven RSIP winddown and one-time costs in FY22;
  - Financing Programs non-personnel opex
  - Environmental Infrastructure increase due to staffing up and program launch costs.
- **Program Incentives and Grants – Net YOY increase of $3.8 Million**
  - The increase is driven by a contingent $5 million dollar incentive we have budgeted to use to attract Federal and Foundation Funding
- **Non-Operating Expenses – Net YOY increase of $201,366**
  - Increase is due to growth in our provisions for loan losses

Connecticut Green Bank

FY 2023 Investments

Program Type - CGB portfolio loan (Asset) advances											
Program Name	Description		Interest Rate	Term in Years	Q1	Q2	Q3	Q4	FY23 Total	FY22 Budget	FY22 YTD Actuals
Multifamily Programs	C4C Lime facility draws		4.0%	15	$ -	$ 100,000	$ -	$ 100,000	$ 200,000	$ 200,000	$ 200,000
Multifamily Programs	PPA Multifamily		4.25%	20	345,000	345,000	345,000	345,000	1,380,000	270,000	-
		Total MultiFamily Program Loans:			***$ 345,000***	***$ 445,000***	***$ 345,000***	***$ 445,000***	***$ 1,580,000***	***$ 470,000***	***$ 200,000***
LMI Programs	Posigen - Junior facility		7.5%	6	$ 525,000	$ 525,000	$ 525,000	$ 525,000	$ 2,100,000	$ -	$ 6,999,432
LMI Programs	Posigen - Working Capital ($2m)		2.0%	10	650,000	450,000	450,000	450,000	2,000,000	-	
LMI Programs	Posigen - Term Loan ($6m)		4.0%	10	-	-	250,000	250,000	500,000	-	
		Total Resi 1-4 Program Loans:			***$ 1,175,000***	***$ 975,000***	***$ 1,225,000***	***$ 1,225,000***	***$ 4,600,000***	***$ -***	***$ 6,999,432***
CPACE	CGB Portfolio	Current/Future Pipeline	5.60%	17.5	$ 1,500,000	$ 1,500,000	$ 2,000,000	$ 2,000,000	$ 7,000,000	$ 5,000,000	$ 3,128,622
Solar PPA Development	PPA State		3.0%	20	2,082,500	2,082,500	2,082,500	2,082,500	8,330,000	9,000,000	1,573,954
Solar PPA Development	PPA Municipality		3.75%	20	-	-	-	-	-	2,347,200	741,496
Solar PPA Development	Commercial Projects		3.75%	20	-	-	-	-	-	-	96,621
Solar PPA Development	PPA Developers		4.50%	20	325,000	325,000	325,000	325,000	1,300,000	1,257,000	659,295
Solar PPA Development	PPA Debt to 3rd parties		4.50%	15	675,000	675,000	675,000	675,000	2,700,000	4,100,000	1,794,111
SBEA	Regular Loan Purchases		3.50%	4	930,000	930,000	930,000	930,000	3,720,000	1,447,000	819,022
		Total CI&I Program Loans:			***$ 5,512,500***	***$ 5,512,500***	***$ 6,012,500***	***$ 6,012,500***	***$ 23,050,000***	***$ 23,151,200***	***$ 8,813,121***
CE Finance Prg	PPA Sub Debt into IPC Fund	Debt financing	5.5%	15	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CE Finance Prg	Strategic Investments	FuelCell Groton	8.0%	10	3,200,000	-	-	-	3,200,000	3,200,000	-
Hydro Projects	Strategic Investments	Canton Hydro	5.0%	10	-	-	-	-	-	-	615,330
CE Finance Prg	Strategic Investments	Unspecified	4.0%	10	-	-	2,500,000	2,500,000	5,000,000	5,000,000	5,000,000
		Total CE Finance Program Loans:			***$ 3,200,000***	***$ -***	***$ 2,500,000***	***$ 2,500,000***	***$ 8,200,000***	***$ 8,200,000***	***$ 5,615,330***
		Total of all Program Loans:			***$ 10,232,500***	***$ 6,932,500***	***$ 10,082,500***	***$ 10,182,500***	***$ 37,430,000***	***$ 31,821,200***	***$ 21,627,883***

Using CEF and RGGI Proceeds, along with cash on hand, we will **invest $37.4 MM** that will deliver **$12.9 MM in interest income over time** or a **weighted average return of 4.42% over 8 years** thereby exceeding our portfolio **target of 4% interest over an average 10-year term**

Resolution #4

WHEREAS, pursuant to Section 5.2.2 of the Connecticut Green Bank (Green Bank) Bylaws, the Budget, Operations and Compensation Committee (BOC) is charged with the review and approval of, and in its discretion recommendations to the Board of Directors (Board) regarding the annual budget and staffing plan for the organization;

WHEREAS, Connecticut Green Bank (Green Bank) staff have reviewed with the Budget, Operations, & Compensation (BOC) Committee the Fiscal Year 2023 Targets and Budget; and

WHEREAS, the Budget, Operations, and Compensation Committee discussed staff entering into new or extending existing professional services agreements (PSAs) with the following, contingent upon a competitive bid process having occurred in the last three years:

I. Adnet Technologies, LLC
II. Clean Power Research, LLC
III. Alter Domus (formerly Cortland)
IV. CSW LLC
V. Inclusive Prosperity Capital
VI. AlsoEnergy LLC
VII. DNV (includes what was formerly ERS)
VIII. Guidehouse (formerly Navigant)
IX. Novasource (f.k.a. SunSystem Technology - SST)
X. PKF O'Connor Davies
XI. C-TEC Solar, LLC
XII. Stark Raving

For fiscal year 2023 with the amounts of each PSA not to exceed the applicable approved budget line item

NOW, therefore be it:

RESOLVED, that Green Bank Board of Directors hereby approves: (1) the FY 2023 Targets and Budget, and (2) the PSAs with the strategic partners listed above.

Board of Directors

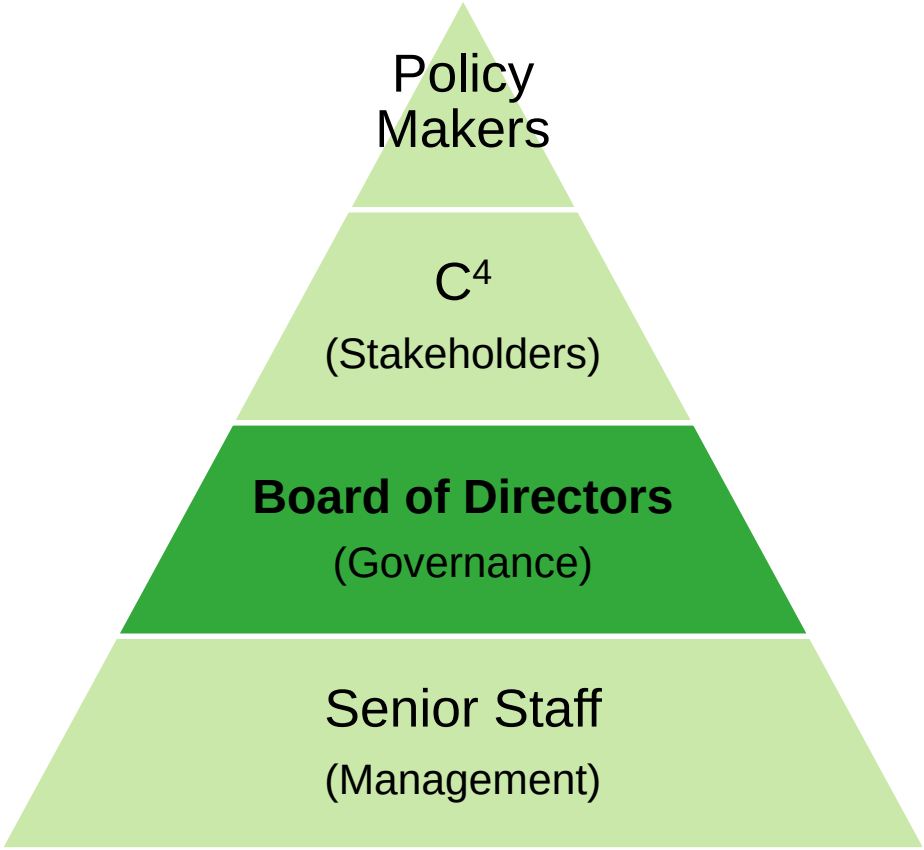
Agenda Item #5b

Audit, Compliance, and Governance Committee

Draft Quarterly Report

Reporting Pyramid

Board of Directors (ACG Committee)



Providing Board of Directors with **abridged version** (i.e., support communications) and **detailed version** (i.e., full disclosure of information) of financial statements on a **quarterly basis**.

Key Messages
Board of Directors

CONNECTICUT GREEN BANK

1. **Making an Impact** – causing measurable statewide benefits (e.g., investment, jobs, energy savings) in communities across the state
2. **Mobilizing Private Investment** – building a strong financial position to increase private investment in the green economy of the state
3. **Achieving Sustainability** – making sound investments from public revenues (e.g., CEF, RGGI) together with efficient operations that support the organization's sustainability and continuous pursuit of mission
4. **Monitor State Benefit Allocation** – tracking operating expenses that are uncontrollable by the organization (i.e., state retirement plan contributions, medical and dental Rx premiums) and adversely impact the sustainability of the organization

Achieving Sustainability

Quarterly P&L Statement Compared to FY23 Budget

		Consolidated 07/01/2021 Through 12/31/2021				
		Actual	Budget	Variance	Prior Year Actual	Variance
Total Revenues						
Public Revenues	{a}	18,470,854	18,455,227	15,628	15,917,217	2,553,637
Earned Revenues	{b}	10,524,027	9,971,115	552,911	10,028,031	495,996
Total Revenues		**28,994,881**	**28,426,342**	**568,539**	**25,945,248**	**3,049,633**
Total Operating Expenses						
Personnel Related Operating Expenses	{c}	4,918,672	5,504,290	(585,618)	4,177,423	741,249
Non-Personnel Related Operating Expenses	{d}	4,531,065	6,240,249	(1,709,185)	4,993,409	(462,344)
Total Operating Expenses		**9,449,737**	**11,744,539**	**(2,294,803)**	**9,170,832**	**278,905**
Margin ($) - All Revenues		**19,545,144**	**16,681,803**		**16,774,416**	
Margin (%) - All Revenues		**67.4%**	**58.7%**		**64.7%**	
Margin ($) - Pre Public Revenues		**1,074,290**	**(1,773,424)**		**857,199**	
Margin (%) - Pre Public Revenues		**3.7%**	**-6.2%**		**3.3%**	
Total Non-Operating Expenses						
Program Incentives and Grants	{e}	8,655,804	8,720,640	(64,836)	9,117,790	(461,986)
Non-Operating Expenses	{f}	2,772,090	3,003,719	(231,630)	2,639,883	132,207
Total Non-Operating Expenses		**11,427,894**	**11,724,359**	**(296,466)**	**11,757,673**	**(329,779)**
Total Expenses		**20,877,630**	**23,468,898**	**(2,591,268)**	**20,928,505**	**(50,875)**
Net Margin ($) - All Revenues (*)		**8,117,251**	**4,957,444**	**3,159,807**	**5,016,743**	**3,100,508**
Net Margin (%) - All Revenues		**28.0%**	**17.4%**		**19.3%**	

Demonstrates **operations management (i.e., margins)** without and with public revenues, and includes non-operating expenses to help discern **organizational sustainability (i.e., net)**

Board of Directors

Agenda Item #6a

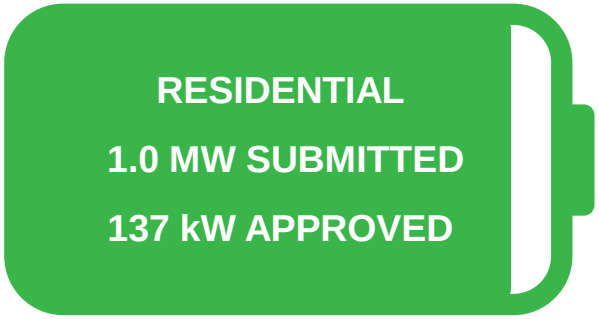
Incentive Programs Updates and Recommendations

Energy Storage Solutions – Upfront Incentives

Energy Storage Solutions

Available Capacity

Residential



As of 06/20/2022, there are 99 applications totaling 1.0 MW of unapproved projects in the residential queue. The current step has 10 MW of capacity

Non-Residential

As of 6/20/22, there are 4.6 MW of approved projects and 59.7 MW of unapproved projects in the commercial and industrial queue. The current step has 50 MW of capacity

Energy Storage Solutions

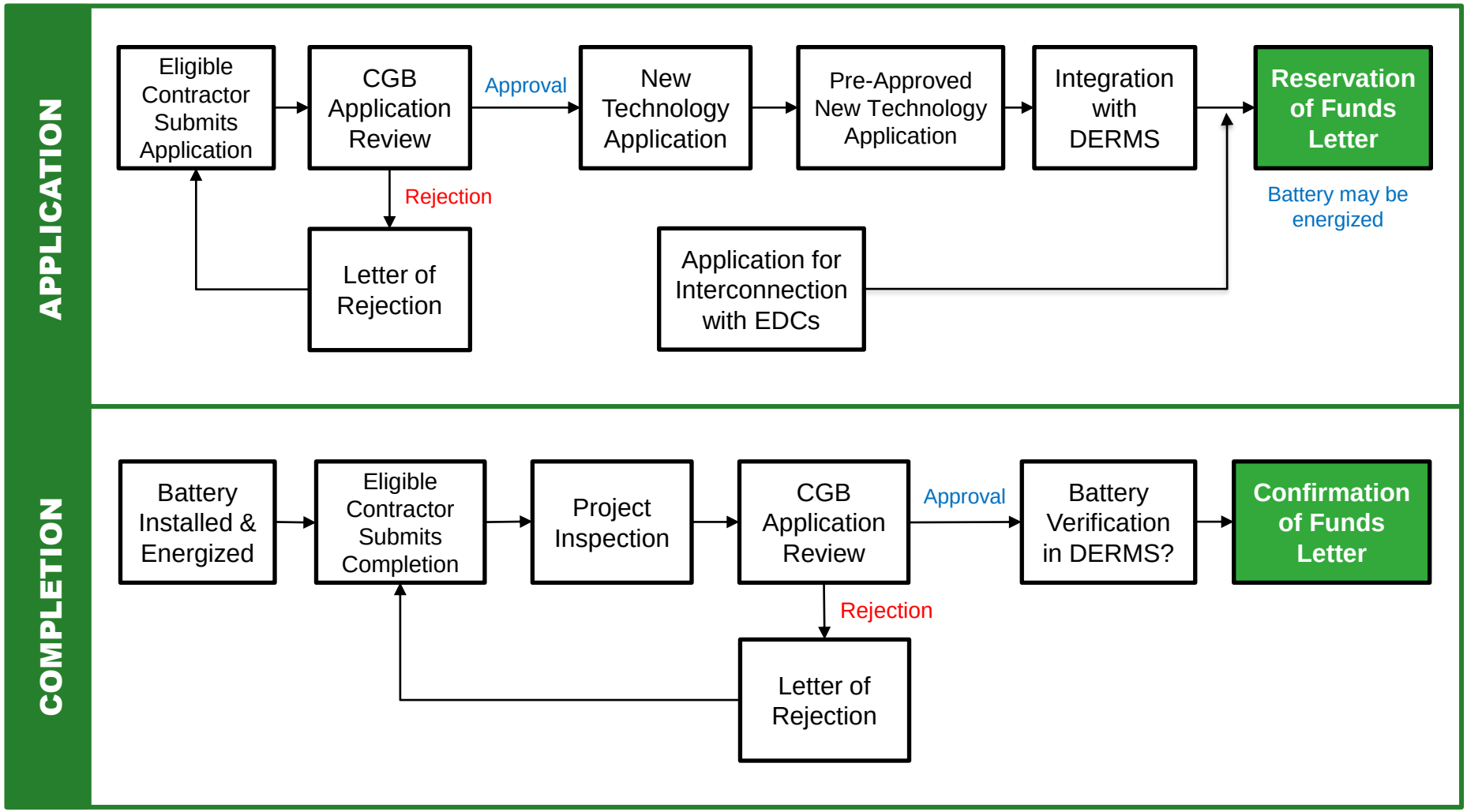
Deployment Targets

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

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

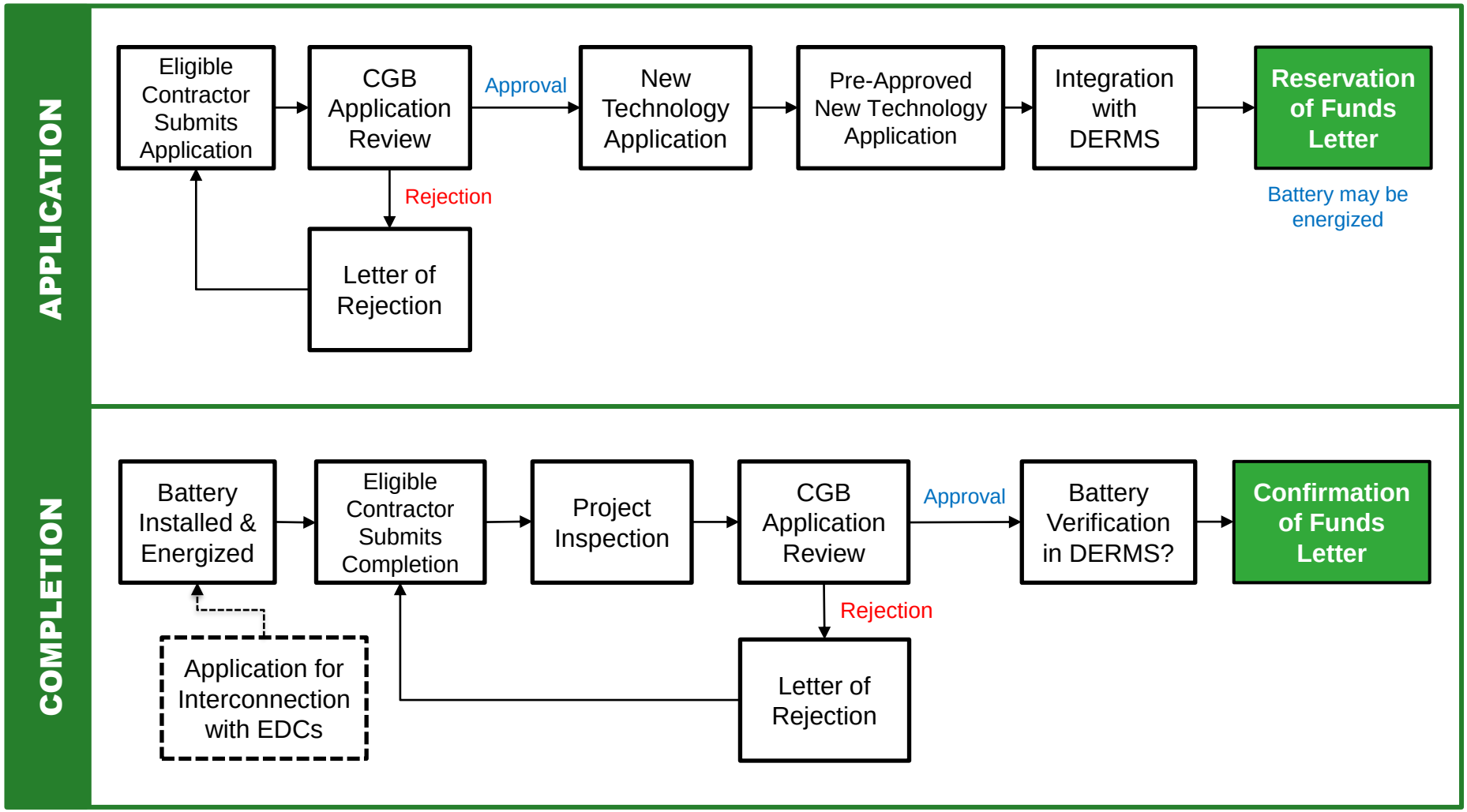
Energy Storage Solutions

Incentive Application and Approval Process



Energy Storage Solutions

Incentive Application and Approval Process



Energy Storage Solutions

Tear Sheet

CONNECTICUT GREEN BANK

Energy Storage Solution Program
Upfront Incentive Application

Project Description	Installation of a Tesla Mega Pack battery storage system to reduce electric bills and provide backup power to the facility during power outages.

Customer / Site information

Customer Name	New England Fitness & Wellness, LLC
Address	375 East Cedar St, Newington CT
Business Purpose	Physical Fitness Facilities
Incentive Application No.	ESS-00048
Incentive Application Date	01/24/2022
Customer Peak Demand (kW)	62
Customer Class (S / M / L)	Small
Project Developer / Installer	ConEdison Solutions
Power Rating to Peak Demand Ratio	12.4
Interconnection Application Filed	Yes
Interconnection Study Required	Distribution study only
Estimated Project Cost	$1,522,042
Incentive Calculation Method	Non-Tiered (Initial oversized system)
Estimated Upfront Incentive	$613,600

Energy Storage Solutions

Application Process - Documentation

- Complete Incentive Application
- Design Narrative
- Signed Terms and Conditions
- Electric Bill showing one year of demand
- Signed Contract or Letter of Intent (LOI)
- Equipment Spec Sheets
- Site Plan
- Wiring Diagrams

Resolution #5

NOW, therefore be it:

RESOLVED, that the Board hereby approves the Green Bank's administration of upfront incentive payments as set forth in the memorandum to the Board dated June 24, 2022;

RESOLVED, that the Board hereby approves that upfront incentive payments under $500,000, as estimated by the Green Bank in fulfillment of its responsibilities set forth in the Program, be issued a ROF letter upon approval by internal Green Bank staff;

RESOLVED, that the Board hereby approves the implementation of an Upfront Incentive Project Approval procedure ("Procedure") involving of the issuance of a proposal for non-residential projects under consideration by the Green Bank in fulfillment of its responsibilities set forth in the Program with an estimated upfront incentive payment greater than $500,000;

RESOLVED, that as part of the Procedure, the Board hereby approves that Green Bank staff shall obtain Board approval of such estimated upfront incentive payments via consent agenda utilizing the Tear Sheet process described in the memorandum to the Board dated June 24, 2022; and,

RESOLVED, that as part of the Procedure, Green Bank staff shall notify the Board of intent to issue a COF letter for an approved Program-implemented, non-residential project with an upfront incentive payment equal to or greater than $500,000, upon such project's compliance with the minimum technical requirements as set forth in the memorandum to the Board dated June 24, 2022.

Board of Directors

Agenda Item #7a

Financing Programs Updates and Recommendations

SHREC Line of Credit

SHREC Warehouse

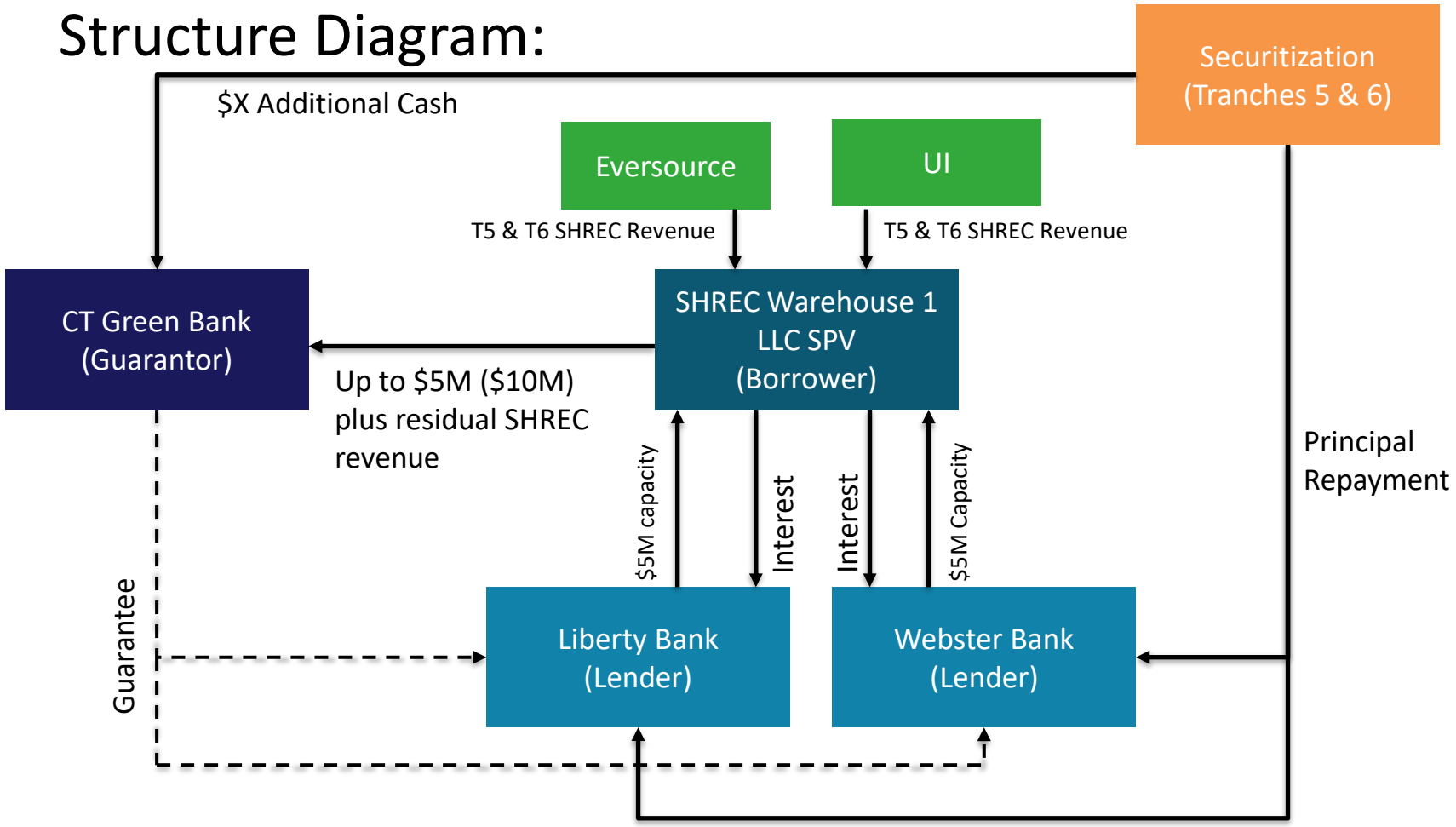
Review and Approval

- Renewal of Revolving Credit Facility established with Liberty Bank and Webster Bank:
  - Approved at the July 23rd, 2021 Board Meeting (Original facility: June 2018)
  - Secured by SHREC revenues & CGB Guaranty
  - $5 million initial sizing plus an additional $5 million upsizing if needed
  - Interest only
  - Maturity – 12 months
  - Interest rate – [to be discussed]
  - Upfront fee – [to be discussed]
  - Unused fee – [to be discussed]
- Strategic benefits:
  - Solidify banking relationships within the State
  - Improves Green Bank leverage vis-à-vis securitizations (T5, T6)
  - Improved liquidity

SHREC Warehouse

Review and Approval

Structure Diagram:



Resolution #6

NOW, therefore be it:

RESOLVED, that the Board of the Green Bank hereby authorizes, ratifies and approves the Loan, as modified, from Webster-Liberty to the Company pursuant to the terms of the Third Amendment and the Modification Documents and authorizes, ratifies, directs and approves the Company's and the Green Bank's entering into the Third Amendment and the Modification Documents to which it is a party and of each other contract or instrument to be executed and delivered by the Company and the Green Bank in connection with the transactions contemplated by the Third Amendment; and be it further

RESOLVED, that the Board of the Green Bank hereby reauthorizes, ratifies and reaffirms the Green Bank's obligations under the Guaranty; and be it further

RESOLVED, that each of the Company and the Green Bank be and it hereby is, authorized to continue to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty a first priority security interest in and to the Company's property, including, without limitation the SHREC Collateral; and be it further

RESOLVED, that the Board hereby authorizes, directs, ratifies and approves Green Bank's and the Company's execution, delivery and performance of the Third Amendment and the other Modification Documents and all of the Green Bank's and the Company's obligations under the Third Amendment and the other Modification Documents; and be it further

RESOLVED, that the actions of Bryan Garcia in his capacity as the President and Chief Executive Officer of Green Bank ("**Garcia**"), Roberto Hunter in his capacity as the Chief Investment Officer of Green Bank ("**Hunter**") and Brian Farnen in his capacity as General Counsel and Chief Legal Officer of Green Bank ("**Farnen**"; and together with Garcia and Hunter, each an "**Authorized Signatory**"), are hereby ratified and approved with regard to the negotiation, finalization, execution and delivery, on behalf of Green Bank and the Company, of the Third Amendment and the other Modification Documents and any other agreements that they deemed necessary and appropriate to carry out the foregoing objectives of Green Bank and/or the Company, and any other agreements, contracts, legal instruments or documents as they deemed necessary or appropriate and in the interests of Green Bank and/or the Company in order to carry out the intent and accomplish the purpose of the foregoing resolutions are hereby ratified and approved; and be it further

RESOLVED, that the Authorized Signatories be, hereby are, acting singly, authorized, empowered and directed, for and on behalf of the Green Bank and the Company (in the Green Bank's capacity as the sole member of the Company), to execute and deliver the Third Amendment and the other Modification Documents; and be it further

RESOLVED, that any other actions taken by any Authorized Signatory are hereby approved and ratified to the extent that such Authorized Signatory or Authorized Signatories have deemed such actions necessary, appropriate and desirable to effect the above-mentioned legal instrument or instruments.

Board of Directors

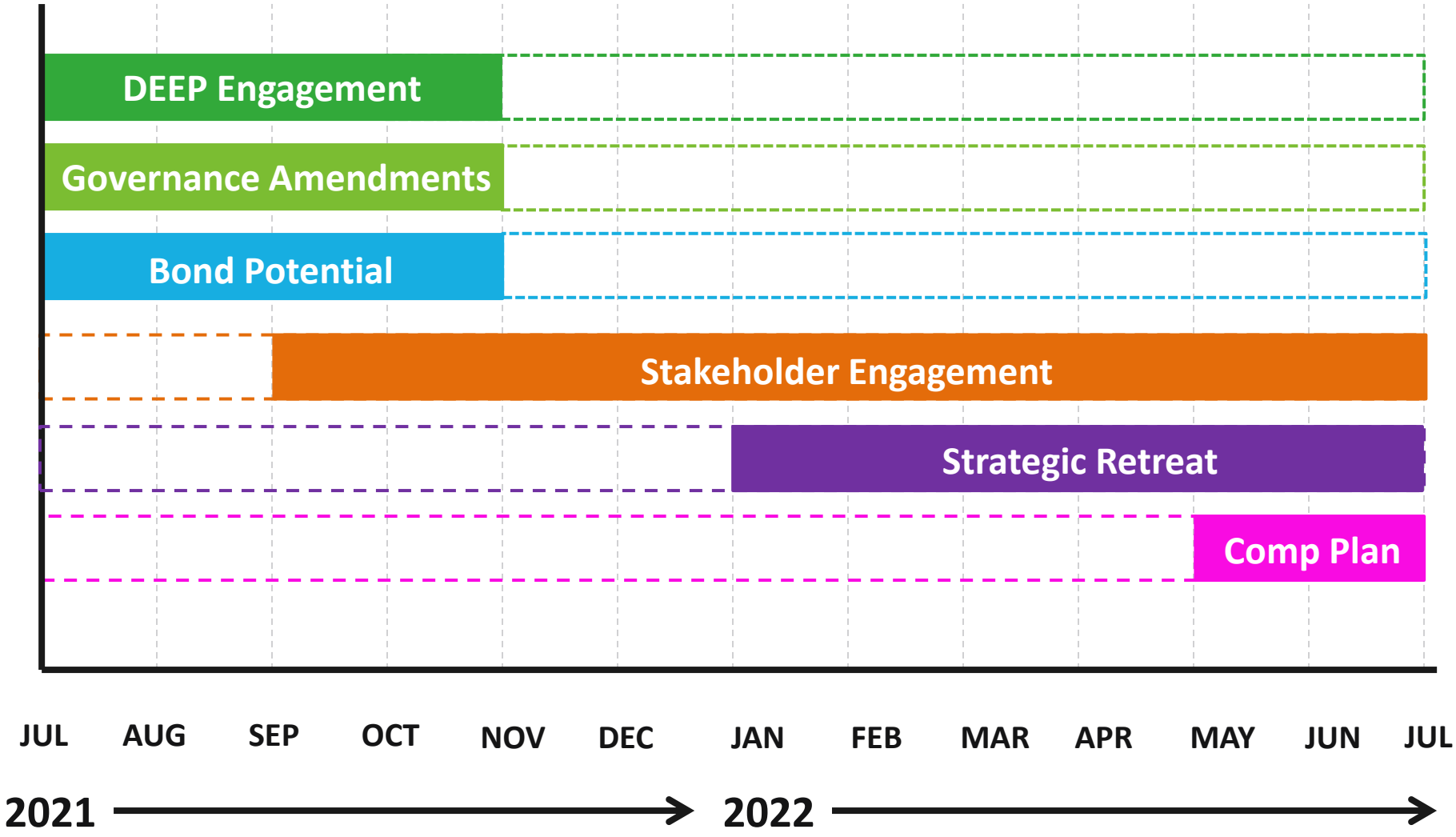
Agenda Item #8a

Environmental Infrastructure Updates

Stakeholder Engagement

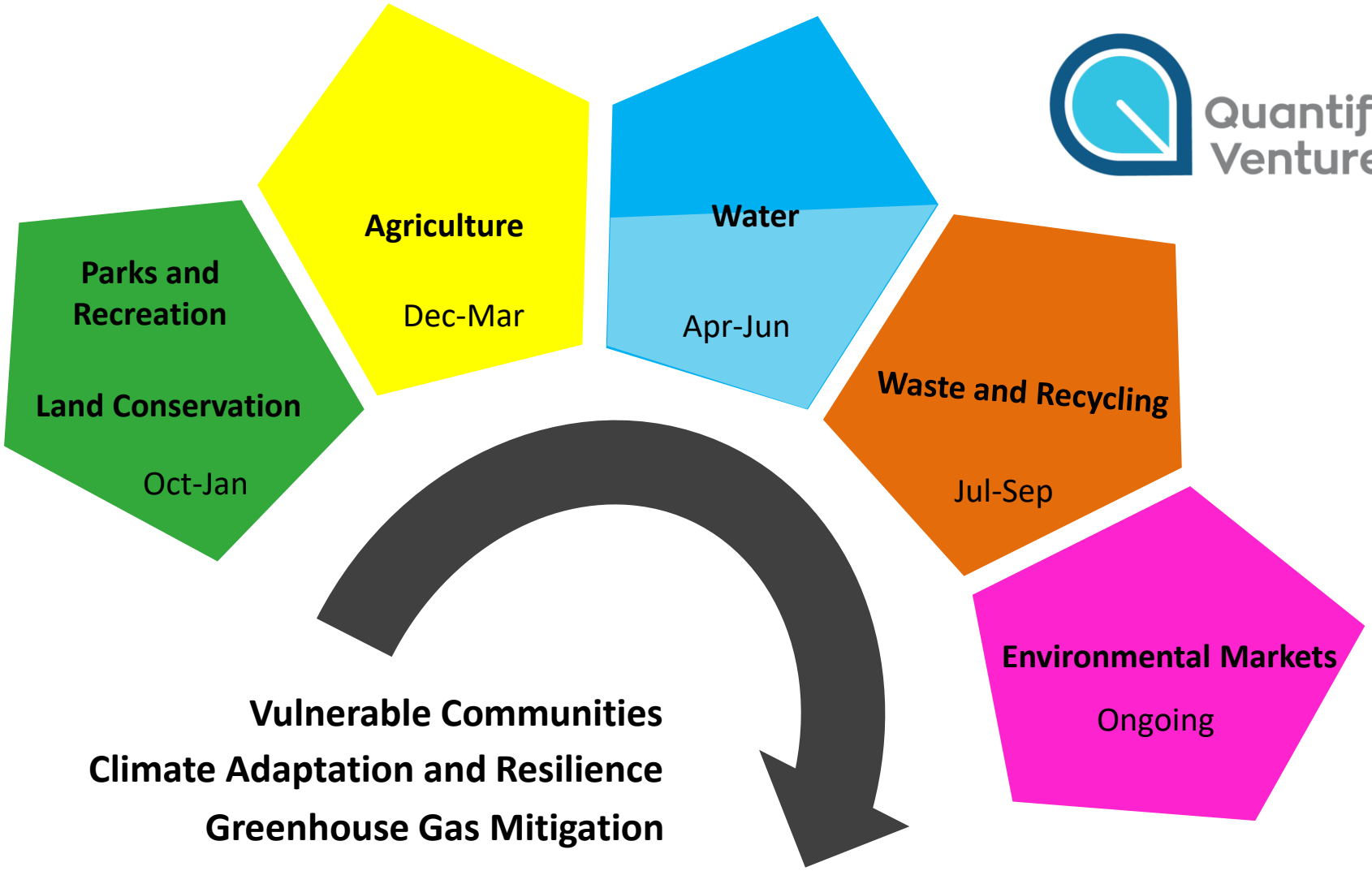
Environmental Infrastructure

Comprehensive Plan Timeline and Deliverables



Stakeholder Engagement

Environmental Infrastructure (Updated)



Stakeholder Engagement
Deliverables

- **Primers** – reviews of stakeholder feedback and findings and in-depth research on public policies, markets, and opportunities:
  - **FY22 Complete** – land conservation, **parks and recreation**, agriculture, and environmental markets (i.e., reference tool for carbon offsets and ecosystem services) – note that climate adaptation and resilience is "cross-cutting" and included alongside mitigation (i.e., reducing GHG emissions) within each area
  - **FY23 In Process** – water, and waste and recycling

- **Opportunities** – IIJA funding opportunities to partner with various stakeholders along the way (e.g., Partnership for Climate Smart Commodities at the USDA-CCC)

- **Engagement** – continuous engagement and relationship building with stakeholders and communities (i.e., local governments, vulnerable communities)

Board of Directors

Agenda Item #8b

Environmental Infrastructure Updates

Strategic Retreat

Retreat Overview

Theme:

Confronting Climate Change in the Constitution State through Investment in Environmental Infrastructure

Location:

Pocantico Center, Tarrytown, NY

Date:

April 27 & 28, 2022

As is the case with all materials resulting from meetings held at The Pocantico Center, the views expressed in this report are not necessarily those of the Rockefeller Brothers Fund, its trustees, or its staff.

CONNECTICUT GREEN BANK

Strategic Retreat (cont'd)

Diverse Participants

Guests:

Matt Ranelli, Shipman and Goodwin

Adrienne Farrar Houel, Greater Bridgeport Community Enterprises

Brenda Watson, Operation Fuel

Dominick Grant, Dirt Capital Partners

John Harrity, Connecticut Roundtable on Climate and Jobs

Chelsea Gazillo, American Farmland Trust

Javier Silva, Federal Reserve Bank of New York

Ashley Stewart, Sustainable CT

Josh Ryor, Public Utilities Regulatory Authority

Ashley Lucht, Quantified Ventures

Walker Holmes, Trust for Public Lands

John Truscinski, Connecticut Institute for Resilience and Climate Adaptation

Taryn Akiyama, Climate Finance Advisors

Bryan Hurlburt, Connecticut Department of Agriculture

CT Green Bank Team Members:

Lonnie Reed, Chair of the Board of Directors

Bryan Garcia, President & CEO

Mackey Dykes, Vice President of Financing Programs

Brian Farnen, General Counsel & Chief Legal Officer

Bert Hunter, Executive Vice President and Chief Investment Officer

Eric Shrago, Vice President of Operations

Sergio Carrillo, Director of Incentive Programs

Sara Harari, Associate Director of Innovation & Sr. Advisor to the President

Emily Basham, Senior Manager of Partnership Development

Rudy Sturk, Associate Director of Marketing & Communication Strategy

Cheryl Lumpkin, Executive Assistant

Facilitators:

Jonathan Raab, Raab Associates

Monica Eager, dpict

Strategic Retreat (cont'd)
Visions for the Future

What will our communities and state look like in 2050?

- Connecticut will be a place people want to move to, work in, and raise their families
- There will be clean air, water, and energy with accessible transportation
- Severe storms will have low- or no-impact

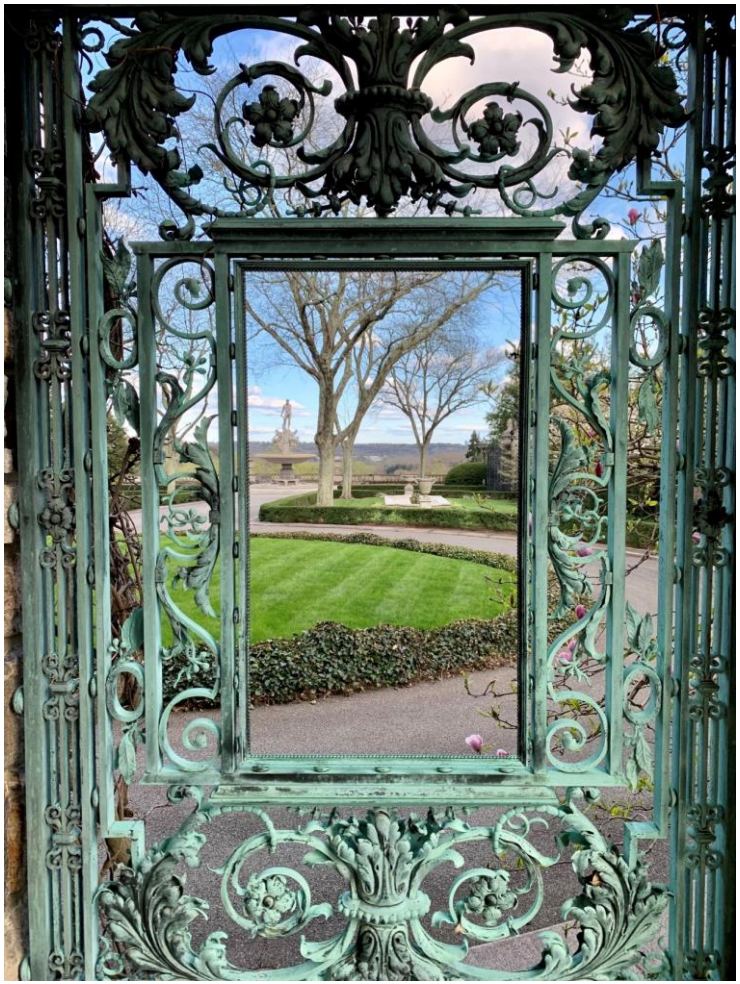
We can't create this change alone, but we can lead

- Connecticut driving regional change: we're a smaller state which means we can be more nimble and iterate on and improve our response to climate change
- The Green Bank driving change in state: we are uniquely positioned to instigate and accelerate change in the state by providing access to capital

CONNECTICUT GREEN BANK

Strategic Retreat (cont'd)
Building on Our Strengths

- **Green Delta:** Our involvement doesn't just enable infrastructure development, it does it in a way that helps the state achieve multiple goals, from Justice40 to workforce development.
- **Our Team:** Our organization successfully attracts and retains high quality talent. We have a culture that enables creativity and encourages innovation. We actively and earnestly break the mold of a slow-moving state agency by being responsive, flexible, and forward-looking.
- **Our Approach**: We act as an intermediary between policy and markets, serving as an explainer-in-chief for a nexus of stakeholders. We bring an ability to establish clear goals, convene disparate groups, and drive change. We are a trusted partner that creates credible products that generate real benefits.



Strategic Retreat (cont'd)
Empowering Impacted Communities

Our current stakeholder engagement tends to fall into the 'inform' and 'consult' categories of the engagement framework. As we move forward into environmental infrastructure (especially now in our learning and growing stage) we need to create a long-term engagement process that explicitly involves, collaborates and empowers impacted communities. This process should include:

- Be a disciplined approach to stakeholder engagement and management
- Include a diverse stakeholder group to identify mainstream needs, not one-offs
- Continuous input and feedback from stakeholders as we chart a new path
- Feedback on: areas of need, 'what it will take' to get there, how new products and programs are being received, how they can be improved
- Feedback from: vulnerable communities, municipalities, sister agencies, etc.

CONNECTICUT GREEN BANK

Strategic Retreat (cont'd)
Divergent Approaches

We're Ready to Go on Environmental Infrastructure!

- We're ready to jump in and find early wins.
- We can work through our existing relationships built on clean energy projects to offer new solutions
- Deploy in areas we think will be sure wins, then use those new success stories to build to more ambitious projects/communities/programs
- We should start having an impact as soon as possible

We Need to Spend More Time Learning and Strategizing

- We should spend more time building a new stakeholder network and commissioning/conducting research on environmental infrastructure
- From this work, we should develop a criteria to prioritize our expansion (e.g. greatest impact, greatest need, reaching underserved populations)
- We should be careful not to waste the reputational capital we have by moving too soon
- We need to identify how revenues can be generated in order to be able to issue bonds to raise proceeds for investment

Strategic Retreat
Deliverables

- **Position Description** – Director of Environmental Infrastructure for approval by the Board of Directors (July 22, 2022)
- **Mission Statement** – proposed revisions to the mission statement for consideration by the Board of Directors and inclusion within Comprehensive Plan (July 22, 2022)
- **Report** – summary document that describes what transpired, including key take-aways from each session and overall take-aways from the strategic retreat to guide the FY 23 Budget and Comprehensive Plan (July 22, 2022)

Board of Directors

Agenda Item #8c

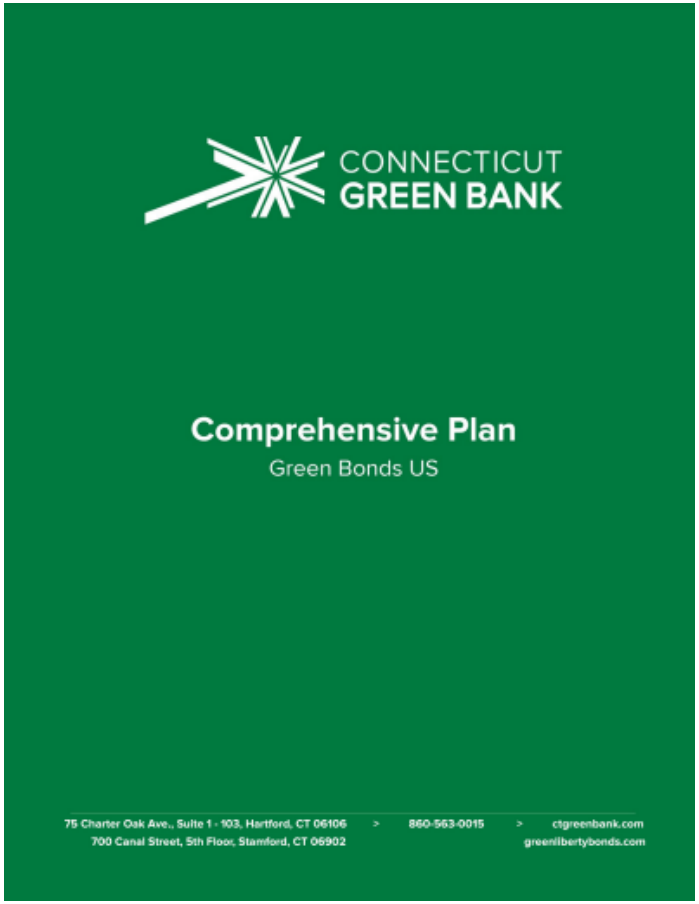
Environmental Infrastructure Updates

Comprehensive Plan

Comprehensive Plan FY20

Green Bonds US

…a planet protected by
the love of humanity



REFERENCES

Vision Statement inspired by the Innovations in American Government Awards at the Ash Center of Harvard University's Kennedy School of Government, Maya Angelou's "On the Pulse of Morning," the powerful words of Mary Evelyn Tucker on "inclusive capitalism," and Mother Jennifer of the Daughters of Mary of the Immaculate Conception

Environmental Infrastructure

Next Steps

- **FY23 Budget** – develop and seek approval (June 24, 2022)
- **Comprehensive Plan** – develop and seek approval (July 22, 2022)
- **New Hires** – initiate searches and hire Director of Environmental Infrastructure (by end of 2022) and Manager of Community Engagement (ASAP)
- **Primers** – on each area of environmental infrastructure (by end of 2022)
- **RFQ for Consultants** – initiate RFQ to onboard technical, legal, financial assistance to support environmental infrastructure (end of 2022)
- **Data** – integrate CCVI and SVI from CIRCA into data warehouse (FY23)

Environmental Infrastructure
Next Steps (cont'd)

- **IIJA** - identify opportunities to compete for and win federal funding for CT (ongoing)
- **Products** – update existing products, including:
  - **Smart-E Loan** – develop product to include environmental infrastructure (i.e., ongoing through Deployment Committee)
  - **C-PACE** – develop product to include resilience
- **Community Engagement** – continue engaging stakeholders with a focus on (1) waste and recycling, (2) local governments, and (3) community-based organizations, especially within vulnerable communities
- **Professional Development** – support ongoing staff and stakeholder learning (e.g., professional development and sponsorship of Conservation Finance Bootcamp)

Board of Directors

Agenda Item #9

Other Business

Other Business

Bipartisan Infrastructure Law Team Connecticut (i.e., DRS)

- **BILT CT** – met with DRS Commissioner Mark Boughton (former Mayor of Danbury) to introduce the Green Bank:
  - ❑ **Impact Metrics** – supporting updating of tax revenue calculator
  - ❑ **Social Media** – they were impressed with the Green Bank that they want to promote our programs as needed
  - ❑ **Opportunity Tracking** – seek support on federal opportunity tracking to areas of interest for the Green Bank (including clean energy and climate change)
  - ❑ **Grant Writing** – we will provide them support to hire and manage a grant writer on behalf of the Green Bank to compete for federal resources
  - ❑ **Coordination** – to support between DEEP, PURA, and others (e.g., DOT)
- **Other** – RACER Concept Paper (with Operation Fuel), and Revolving Loan Funds RFI

Other Business (cont'd)

Communities LEAP WINNER!!!

Board of Directors

Agenda Item #10

Adjourn

BOARD OF DIRECTORS OF THE
CONNECTICUT GREEN BANK
Regular Meeting Minutes

Friday, April 22, 2022
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 April 22, 2022.

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

Board Members Present: Binu Chandy, Matthew Dayton, Thomas Flynn, Dominick Grant, Victoria Hackett, John Harrity, Adrienne Farrar Houël, Matthew Ranelli, Lonnie Reed, Sarah Sanders, Brenda Watson

Board Members Absent: Laura Hoydick

Staff Attending: Sergio Carrillo, Shawne Cartelli, Mackey Dykes, Brian Farnen, Bryan Garcia, Sara Harari, Bert Hunter, Alex Kovtunenko, Cheryl Lumpkin, Desiree Miller, Jane Murphy, Ariel Schneider, Eric Shrago, Dan Smith

Others present: Claire Sickinger, Giulia Bambara, Greg Leventis, Jeff Deason, and Sean Murphy from Lawrence Berkeley National Laboratory

1. Call to Order

- Lonnie Reed called the meeting to order at 9:03 am.

2. Public Comments

- No public comments.

3. Consent Agenda

Bryan Garcia briefly reviewed the items on the Consent Agenda.

a. Meeting Minutes of March 23, 2022

Resolution #1

Motion to approve the meeting minutes of the Board of Directors for March 23, 2022.

b. Staff Approval of 3 C-PACE transactions

Resolution #2

WHEREAS, on January 18, 2013, the Connecticut Green Bank (the "Green Bank") Board of Directors (the "Board") authorized the Green Bank staff to evaluate and approve funding requests less than $300,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Green Bank Comprehensive Plan, approved within Green Bank's fiscal budget and in an aggregate amount not to exceed $500,000 from the date of the last Deployment Committee meeting, on July 18, 2014 the Board increased the aggregate not to exceed limit to $1,000,000 ("Staff Approval Policy for Projects Under $300,000"), on October 20, 2017 the Board increased the finding requests to less than $500,000 ("Staff Approval Policy for Projects Under $500,000"); and

WHEREAS, Green Bank staff seeks Board review and approval of the funding requests listed in the Memo to the Board dated April 22, 2022 which were approved by Green Bank staff since the last Deployment Committee meeting and which are consistent with the Staff Approval Policy for Projects Under $500,000;

NOW, therefore be it:

RESOLVED, that the Board approves the funding requests listed in the Memo to the Board dated April 22, 2022 which were approved by Green Bank staff since the last Deployment Committee meeting. The Board authorizes Green Bank staff to approve funding requests in accordance with the Staff Approval Policy for Projects Under $500,000 in an aggregate amount to exceed $1,000,000 from the date of this Board meeting until the next Deployment Committee meeting.

c. C-PACE Project in Hartford

Resolution #3

WHEREAS, pursuant to Conn. Gen. Stat. 16a-40g (the "Act") the Connecticut Green Bank ("Green Bank") is directed to, amongst other things, establish a commercial sustainable energy program for Connecticut, known as Commercial Property Assessed Clean Energy ("C-PACE");

WHEREAS, pursuant to the C-PACE program, the Connecticut Green Bank Board of Directors (the "Board") or the Connecticut Green Bank Deployment Committee ("DC"), as may be applicable, approved and authorized the President of the Green Bank to execute financing agreements for the C-PACE projects described in the Memo submitted to the Board on April 14, 2022 (the "Finance Agreements");

WHEREAS, the Finance Agreements were authorized to be consistent with the terms, conditions, and memorandums submitted to the Board or DC, as may be applicable, and executed no later than 120 days from the date of such Board or DC approval; and

WHEREAS, due to delays in fulfilling pre-closing requirements the Green Bank will need more time to execute the Finance Agreements.

NOW, therefore be it:

RESOLVED, that the Board extends authorization of the Finance Agreements to no later than 120 days from April 22, 2022 and consistent in every other manner with the original Board authorization for the Finance Agreement.

d. Groton Subbase FuelCell Energy Project

Resolution #4

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, which was further extended by the Board in October 2021 to December 31, 2021, which was further extended by the Board in December 2021 to January 31, 2022, which was further extended by the Board in January 2022 to March 31, 2022, and which was further extended by the Board in March 2022 to May 31, 2022;

WHEREAS, Green Bank staff has further advised the Board that the closing for the Credit Facility may close in early June 2022 and to accommodate the additional time that might be needed to execute the Credit Facility requests the permitted time to execute the credit facility be increased from not later than 529 days from the original date of authorization by the Board (May 31, 2022) to not later than 559 days from the date of authorization by the Board (i.e., to June 30, 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 559 days from the original date of authorization by the Board (i.e., not later than June 30, 2022);

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 Victoria Hackett and seconded by Brenda Watson, the Board of Directors voted to approve the Consent Agenda which contains Resolutions 1-4. None opposed or and Matthew Ranelli abstained. Motion approved.

4. Investment Updates and Recommendations

a. Green Bank Capital Solutions – PosiGen and Generac

- Bert Hunter summarized the history of Generac and strategic partnership proposal between them and PosiGen for LMI Solar and Storage. He reviewed the Energy Storage Solutions goals, targets, benefits, and incentive levels. He explained the key aspects of the partnership which includes PosiGen paying for the purchase and installation of the batteries while Generac supplies the equipment and warranty service. The customers, starting with PosiGen's existing customer base from the former Residential Solar Investment Program (RSIP), would pay nothing upfront with either a small or no increase in payments afterwards. Generac also guarantees active dispatch incentive payments to PosiGen regardless of actual performance for the life of the program on a battery-by-battery basis. There is a combination of PURA-approved incentives (administered by the Green Bank and the utilities) which make the program possible.
- Bert Hunter explained that PosiGen submitted their request into the Capital Solutions "Open RFP" program to fund the program, which includes a $2 million working capital line to purchase the hardware from Generac and a $6 million term loan facility, which should cover future installations over the next 2 years and is sized specifically to the revenues that will come in from the incentive payments from the utilities over time. He reviewed the details of the facility.
    - Victoria Hackett asked if there is a percentage or focus on multi-unit homes or if the focus is for single family homes. Bert Hunter answered that for this particular arrangement, it is for single-family homes because of PosiGen's focus, though it could be expanded in the future. Victoria Hackett commented that PURA is still working on the tariff for larger systems but wanted to bring attention to it.
    - Victoria Hackett asked about the market impacts of this partnership, and what percentage of homes would the partnership serve. Bert Hunter answered that PosiGen is approaching 5,000 systems in Connecticut and this is looking to supply 2,000 systems over a 2-year period, so this is about 40-50% of their existing customer base. Some installations may be done on new customers, but

because of parameters of the project, he does not expect there to be as many new customers due to them falling under the netting tariff.

- Victoria Hackett asked about other providers that may be interested in this kind of partnership and if there is an expectation to grow the opportunity to other companies. Bert Hunter answered that because it is through the Open RFP program, it is open to anyone else who makes the effort to submit a proposal and the Green Bank is happy to review any that are submitted.
- Victoria Hackett asked in relation to whole-building electrification, if customers are being asked if they would like to participate to increase their system size to account for potential future electrification. Bert Hunter suggested that the Green Bank work with the team at PURA to develop the sales process to manage that sort of endeavor. Victoria Hackett clarified she meant for existing customers, and Bert Hunter responded that the Green Bank staff would have to think more on how to properly develop those kinds of additions.
- Victoria Hackett asked about the balance of the risk for this program and why payment would be guaranteed regardless of performance. Bert Hunter answered that Generac is guaranteeing that the battery will meet the performance required for a payment under the incentive program, so if the failure of the battery to generate a whole payment occurs, Generac will make the payment whole in order to ensure a revenue stream over the 10 years.
- Lonnie Reed commented that she is grateful companies are getting vetted and that partnerships are being made with established, successful companies and that due diligence is being performed.
- Matthew Ranelli asked about the parameters of extensions. Bert Hunter answered that his understanding was correct, and that the Green Bank would come back to the Board for approval to finalize any extension.
- John Harrity noted he had a quick question but would ask it offline in the interest of time.
- Matthew Dayton asked if both companies have their proper registrations, filings, etc. Bert Hunter answered that they absolutely do as those would be a condition prior to any draws – as these are standard provisions of our financing agreements.

Resolution #5

WHEREAS, the Connecticut Green Bank ("Green Bank") has an existing partnership with PosiGen, Inc. (together with its affiliates and subsidiaries, "PosiGen") to support PosiGen in delivering a solar lease and energy efficiency financing offering to LMI households in Connecticut;

WHEREAS, PosiGen is planning to expand its offerings to LMI households in Connecticut to include an affordable battery energy storage system ("BESS") option that will provide the customer backup power during a power outage and will reduce peak demand on the electric distribution system, as more fully explained in a memorandum dated April 15, 2022 to the Green Bank Board of Directors (the "Board Memo");

NOW, therefore be it:

RESOLVED, that the Green Bank may advance a working capital line to PosiGen for the purchase of battery energy storage systems not to exceed $2 million on the terms substantially similar to those described in the Board Memo;

RESOLVED, that the Green Bank may further advance up to $6 million in term loan financing to PosiGen by periodically converting such working capital advances (or any cash purchased eligible collateral owned by PosiGen or its subsidiaries that is backed by customer contracts for BESS systems) on terms substantially similar to those described in the Board Memo; 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 affect the above-mentioned legal instruments.

Upon a motion made by John Harrity and seconded by Matthew Ranelli, the Board of Directors voted to approve Resolution 5. None opposed and Brenda Watson abstained. Motion approved.

b. Green Bank Capital Solutions – Budderfly

- Bert Hunter summarized the history of Budderfly, a CT-based Energy Efficiency as a Service company. Desiree Miller summarized the issues around energy efficiency and Budderfly's services which includes identifying a customer's energy issues and implements the energy conservation solutions while providing the capital to do so in exchange for sharing some of the customer's savings by taking over the utility bill and becoming the Customer of Record. The customer pays Budderfly based on their 10-year contract, and then Budderfly pays the utility company based on their utility usage and savings. Desiree Miller reviewed Budderfly's history and other key details, noting that it is in a serious growth mode. Budderfly also collects, analyzes the equipment data to correct issues, and uses that data to continually improve the technology and process. She reviewed the capital flow.
- Bert Hunter summarized the current debt holders within the financing structure and client market. He explained the size of the financial facility that the Green Bank is proposing which is $5 million. He reviewed Budderfly's management, balance sheet, and other financial data points, though some information was kept confidential for the public presentation.
    - Lonnie Reed noted for clarification that Thomas Flynn on the management team for Budderfly is not the same Thomas Flynn on the Green Bank Board of Directors, and Thomas Flynn added that he has no relation.
    - John Harrity commented that the Green Bank and its teams are remarkable for how they constantly find ways to benefit the public and congratulated them on their efforts. Bert Hunter explained some of the history of how the Green Bank found Budderfly and how the relationship grew.
    - Thomas Flynn asked about the difference between the Senior and Junior debt positions. Bert Hunter answered that the collateral is the same but in a liquidation preference, collateral would first go to the Senior debt holders, and then anything else to the Junior debt holders. Thomas Flynn asked if the Pari Passu is between the Junior debt holders. Bert Hunter said that is correct.
    - Thomas Flynn asked why the Green Bank is going into the program at essentially 2.5x the investment of Connecticut Innovations. Bert Hunter answered that the Green Bank is entering based on the sizing of the Connecticut part of the collateral, are comfortable with that, and said that CI may increase their facility in the future when he had discussed the Budderfly relationship with them.

- Thomas Flynn asked about getting into the franchise sector and any risk compared to other sectors. Bert Hunter answered that the risk of the restaurant sector is franchise failure and issues due to COVID-19, but quick-serve restaurants have adapted well to COVID-19 so that has been mitigated somewhat. Thomas Flynn expressed his concern with the risk in general within the restaurant sector. Bert Hunter responded that as far as that riskier nature, what is working to the Green Bank's benefit is the growing size of Budderfly and therefore diversity in terms of credit risk – meaning that at present there are several thousand customer contracts which reduces overall risk. He summarized some details about their collection rates which is very successful and stable. Thomas Flynn commented that he still holds concerns about the risk due to the nature of the industry itself.
- Dominick Grant asked for more information about Budderfly's positioning in the market, especially in comparison to similar companies, as they are looking to grow aggressively and meeting their projections. Bert Hunter responded that though there are Energy Efficiency as a Service companies, the bigger ones are not competing within the same industry sector and are more focused on corporate and commercial real estate opportunities. As well, there is a lot of intellectual property that has been developed by Budderfly in terms of equipment and data analytics – much of which is patented, and that so much of the success of their business model is allowing franchise owners to understand what is happening with their systems and energy usage. Budderfly's analytics allows businesses to know what is happening with much more detail than other companies may provide.
- Dominick Grant asked if Budderfly has any relationships to anyone at the Green Bank either professionally or personally that should be known. Bert Hunter responded no, but Matt Ranelli answered that Budderfly is a company his firm works with but has not been part of any of the discussions between Budderfly and the Green Bank and would be abstaining from the vote. Bert Hunter stated it was new information to him.

Resolution #6

RESOLVED, that the Connecticut Green Bank ("Green Bank") is authorized to enter into a six (6) year subordinated term loan agreement with Budderfly, Inc. in a maximum cash advanced amount of $5,000,000 together with any ancillary documentation in respect of same, as more fully explained in the memorandum to the Green Bank Board of Directors (the "Board") dated April 18, 2022; 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 affect the above-mentioned legal instruments.

Upon a motion made by Adrienne Houël and seconded by Brenda Watson, the Board of Directors voted to approve Resolution 6. Thomas Flynn and Matthew Dayton opposed. Matthew Ranelli, Binu Chandy, and Victoria Hackett abstained. Lonnie Reed, Adrienne Houël, Brenda Watson, John Harrity, Sarah Sanders, and Dominick Grant approved. Motion approved.

Brian Farnen commented that the language in relation to which votes are counted and whether abstaining Board members are considered "in attendance and voting" in calculating a majority

vote may be discussed and adjusted in the future for clarity.

Matthew Ranelli left the meeting at 10:25 am.

5. Financing Programs Updates and Recommendations
a. Progress to Target Updates

- Mackey Dykes reviewed the progress to targets for financing programs. The Green Bank is currently at 77% of projects closed to target, which is 522 of 679 projects, and has deployed about 41% of capital, which is $20.9 million of $48.9 million. He reviewed the updates to the C-PACE program which has closed 12 of 33 projects for $10 million capital deployed of $15.2 million. He stated that overall, the Green Bank may come up a bit short for number of projects deployed but expect to meet the capital deployed goal by the end of the fiscal year. For the PPA program updates, a total of 7 projects have closed for a total of $2.4 million in capital deployed.

6. Incentive Programs Updates and Recommendations
a. Evaluation, Measurement, and Verification for Energy Storage Solutions – Guidehouse

- Eric Shrago summarized the progress on the Energy Storage Solutions program with details on the EM&V partner selection process. Of the 4 responses received, Guidehouse was selected, and there is a request for an EM&V cost to be increased to $1 million over the next three years to accommodate the Guidehouse's estimate of $873,000 as well as any additional anticipated expenses, which is still well under the $3.9 million limit to EM&V expenses as set by PURA. He noted that all the expenses are also cost-recoverable through PURA and the utility companies.

Resolution #7

WHEREAS, the Public Utilities Regulatory Authority (PURA) ordered the Green Bank, Eversource, and United Illuminating to co-administer a battery storage incentive program and as program co-administrators, the three are jointly responsible for the Evaluation, Measurement and Verification (EM&V) of the Energy Storage Solutions Program;

WHEREAS, the co-administrators need EM&V consulting support to independently assess the program's impact and ensure that it is achieving the established benefit-cost analyses; and

WHEREAS, the three co-administrators issued a joint request for proposal for partners and received 4 responses and ultimately selected the consultant as the EM&V partner for the program for the first three-year program cycle (2022-2024);

NOW, therefore be it:

RESOLVED, that the Green Bank Board of Directors authorizes staff to enter into a three-year contract with Guidehouse, Inc. for Evaluation, Measurement, and Verification Services related to the Energy Storage Solutions Program in an amount not to exceed $1 million; 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 Victoria Hackett and seconded by John Harrity, the Board of Directors voted to approve Resolution 7. None opposed or abstained. Motion approved unanimously.

b. Progress to Target Updates

- Sergio Carrillo summarized the progress to targets for Incentive Programs. Currently 92% of target projects have closed, which is 2,520 closed, and 95% of the target capital has been deployed, which is $75.8 million. He stated he is confident the Smart-E targets will be met by the end of the fiscal year. He gave an update to the RSIP and RSIP-E programs, which are fully subscribed and have just received the last Class 1 REC Certification approvals from PURA for all 350 MW of RSIP. For RSIP-E, 22.9 of the 24.8 MW are in progress to be submitted for approval for Class 1 REC Certification. Sergio Carrillo continued with the SHREC and non-SHREC REC updates, which includes 46,705 projects across the different RSIP and RSIP-E REC types, putting the Green Bank in a good position to create RECs and meet the commitments made with Exelon. He summarized the RSIP and RSIP-E Step breakdown.
- Sergio Carrillo summarized the progress in the ESS program, which has plenty of Residential capacity available but no capacity available for Non-Residential projects. The meeting with PURA to discuss options for Non-Residential systems may result in PURA deciding to allow the next 3-year block of capacity to become available, pending a formal proposal, possible updates to the program design to be sure it is effective, and final decision on the matter.
- Sergio Carrillo gave an update to the RGM Replacement project which has 2,924 meters remaining to replace, though they found out more meters owned by third-party owners are also being affected by the 3G shutdown. Unfortunately, the replacement progress is being affected by a nation-wide meter and meter socket shortage.

7. Environmental Infrastructure Updates

- Bryan Garcia gave a quick update. The timeline progress is going well, continuing to engage stakeholders through the end of the fiscal year. There is an upcoming strategic retreat as well, and the plan is to assemble a draft comprehensive plan soon. He reviewed the details of the segments of environmental infrastructure and details of the strategic retreat.

Brenda Watson and Matthew Dayton left the meeting at 11:00 am.
Victoria Hackett left the meeting at 11:18 am.

8. Lawrence Berkeley National Laboratory

- Bryan Garcia introduced Greg Leventis, Jeff Deason, and Sean Murphy from Lawrence

Berkeley National Laboratory.

- Gregory Leventis gave a project overview and reasoning for the loan-level analysis of the financial performance of energy efficiency loan program portfolios. He explained which portfolios were studied, loan characteristics, and other descriptive statistics.
- Sean Murphy summarized the loan performance analysis. He primarily focused on two metrics, delinquency and loss rate. He reviewed several summaries of data, concluding with the finding that is a statistically significant relationship between credit score and delinquencies and losses. As well, there is a relationship, though not as strong of one, between AMI band and delinquencies and losses.
- Jeff Deason summarized the performance comparison with other loan products. Overall, the pooled energy efficiency loans across all programs had a lower delinquency rate compared to other types of loans. In comparison for loss rates, energy efficiency loans performed only slightly worse than KBRA Prime Auto loans, and significantly better than KBRA Tier 1 Consumer loans.
- Jeff Deason reviewed the conclusions from the study which includes that borrowers are often high credit and middle income, delinquency and loss rates are low, and that pooled across 4 programs, efficiency loans outperform most logical comparisons. The key implications of the study include that there is an opportunity for capital providers to lend at low risk while creating an efficient building stock in the process. As well, that high-credit households in lower income areas can be expected to repay their loans at a strong rate.
- Bryan Garcia thanked the LBNL team for their hard work and presentation. He also thanked DEEP for their support through the American Recovery and Reinvestment Act.
- Bert Hunter thanked the LBNL team and commented about how similar the analysis was to what the Green Bank was expecting. Jeff Deason responded that he is interested in how lenders will receive the information.
- Adrienne Houël thanked LBNL for their time and explanation.

Dominick Grant left the meeting at 11:26 am.

9. Adjourn

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

Respectfully submitted,

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Lonnie Reed, Chairperson

75 Charter Oak Avenue, Suite 1 - 103, Hartford, CT 06106
T 860.563.0015
ctgreenbank.com

CONNECTICUT
GREEN BANK

Memo

To: Board of Directors of the Connecticut Green Bank – Deployment Committee of the Connecticut Green Bank

From: Bryan Garcia (President and CEO)

CC:

Date: 2022/06/24

Re: Approval of Funding Requests below $500,000 and No More in Aggregate than $1,000,000 – Update

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At the October 20, 2017 Board of Directors (BOD) meeting of the Connecticut Green Bank ("Green Bank") it was resolved that the BOD approves the authorization of Green Bank staff to evaluate and approve funding requests less than $500,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Comprehensive Plan, approved within Green Bank's fiscal budget and in an aggregate amount not to exceed $1,000,000 from the date of the last Deployment Committee meeting. This memo provides an update on funding requests below $500,000 that were evaluated and approved. During this period, 2 projects were evaluated and approved for funding in an aggregate amount of approximately $472,929.50. If members of the board or committee would be interested in the internal documentation of the review and approval process Green Bank staff and officers go through, then please request it.

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27 Realty Drive: A C-PACE Project in Cheshire, CT

Address	27 Realty Dr., Cheshire, CT 06410			
Owner	AGSA Realty LLC			
Proposed Assessment	$423,613.50			
Term (*years*)	12			
Term Remaining (*months*)	Pending construction completion			
Annual Interest Rate	4.85%			
Annual C-PACE Assessment	$46,979			
Savings-to-Investment Ratio	1.54			
Average DSCR[1]	[redacted]			
Lien-to-Value	[redacted]			
Loan-to-Value	[redacted]			
Projected Energy Savings (mmBTU)		EE	RE	Total
	Year 1	0	514	514
	Over EUL	0	12,111	12,111
Estimated Cost Savings (incl. ZRECs and tax benefits)	Year 1	0	$149,230	$149,230
	Over EUL	0	$885,735	$885,735
Objective Function	kBTU / ratepayer dollar at risk			
Location	Cheshire			
Type of Building	Warehouse			
Year of Build	Building 1: 1988 Building 2: 2000			
Building Size (*sf*)	Total: 37,552 sf Building 1: 22,366 sf Building 2: 15,186 sf			
Year Acquired by Owner	2022			
As-Complete Appraised Value[2]	[redacted]			
Mortgage Outstanding	[redacted]			
Mortgage Lender Consent	[redacted]			
Proposed Project Description	135 kW rooftop solar PV + Roof Upgrade			
Est. Date of Construction Completion	Pending closing			
Current Status	Awaiting Staff Approval			
Energy Contractor	[redacted]			

[redacted]

[redacted]

Address	760 Spring St, Southington, CT 06033		
Owner	Tabernacle Christian Church		
Proposed Assessment	$49,316.40		
Term (*years*)	15		
Term Remaining (*months*)	Pending construction completion		
Annual Interest Rate[3]	5.00		
Annual C-PACE Assessment	$4,712		
Savings-to-Investment Ratio	1.10		
Average DSCR	[redacted]		
Lien-to-Value	[redacted]		
Loan-to-Value	[redacted]		
Projected Energy Savings (mmBTU)			Total
	First year		210
	Over EUL		3,149
Estimated Cost Savings (incl. ZRECs and tax benefits)	First year		$4,839
	Over EUL		$89,926
Objective Function	73.34 kBTU / ratepayer dollar at risk		
Location	Southington		
Type of Building	Industrial		
Year of Build	1991		
Building Size (*sf*)	17,520		
Year Acquired by Owner	1991		
As-Complete Appraised Value[4]	[redacted]		
Mortgage	[redacted]		
Proposed Project Description	HVAC system		
Est. Date of Construction Completion	Pending Closing		
Energy Contractor	[redacted]		

[redacted]

Resolution

WHEREAS, on January 18, 2013, the Connecticut Green Bank (the "Green Bank") Board of Directors (the "Board") authorized the Green Bank staff to evaluate and approve funding requests less than $300,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Green Bank Comprehensive Plan, approved within Green Bank's fiscal budget and in an aggregate amount not to exceed $500,000 from the date of the last Deployment Committee meeting, on July 18, 2014 the Board increased the aggregate not to exceed limit to $1,000,000 ("Staff Approval Policy for Projects Under $300,000"), on October 20, 2017 the Board increased the finding requests to less than $500,000 ("Staff Approval Policy for Projects Under $500,000"); and

WHEREAS, Green Bank staff seeks Board review and approval of the funding requests listed in the Memo to the Board dated June 24, 2022 which were approved by Green Bank staff since the last Deployment Committee meeting and which are consistent with the Staff Approval Policy for Projects Under $500,000;

NOW, therefore be it:

RESOLVED, that the Board approves the funding requests listed in the Memo to the Board dated June 24, 2022 which were approved by Green Bank staff since the last Deployment Committee meeting. The Board authorizes Green Bank staff to approve funding requests in accordance with the Staff Approval Policy for Projects Under $500,000 in an aggregate amount to exceed $1,000,000 from the date of this Board meeting until the next Deployment Committee meeting.

75 Charter Oak Avenue, Hartford. Connecticut 06106
T: 860.563.0015
www.ctgreenbank.com

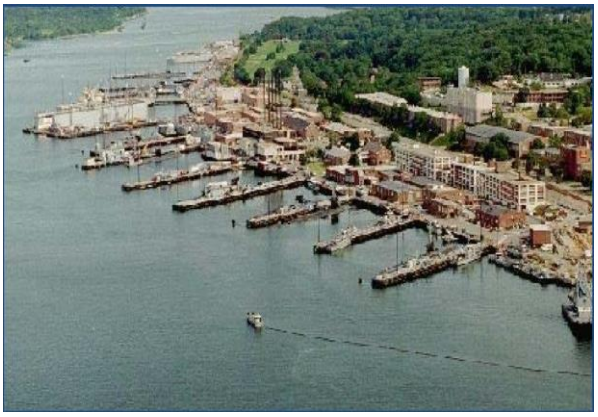
Connecticut Municipal Electric Energy Cooperative (CMEEC)

& US Naval Submarine Base – Groton, CT Fuel Cell Project

A Fuel Cell Debt Financing Strategic Selection

Green Bank Term Loan Facility Extension Request

June 24, 2022



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: June 17, 2022

Re: FuelCell Energy / US Navy / CMEEC / Groton Fuel Cell Project
Term Loan Facility Update & Extension Request

At the April 2022 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's "commercial operation date" is now projected with reasonable confidence to occur by the end of June or the first few days of July (everything is complete for the project but certain commissioning tests need to be finalized). This being the case, the project financing is now expected to close by early July and legal meetings between the lenders are well underway. Accordingly, staff requests the original approval "execute by date" be extended to 590 days from its original approval date (to bring the extension to July 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 on a number of occasions, including in April 2022 to June 30, 2022;

WHEREAS, Green Bank staff has further advised the Board that the closing for the Credit Facility is expected to close in early July 2022 and to accommodate the additional time that might be needed to execute the Credit Facility requests the permitted time to execute the credit facility be increased from not later than 559 days from the original date of authorization by the Board (June 30, 2022) to not later than 590 days from the date of authorization by the Board (i.e., to July 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 590 days from the original date of authorization by the Board (i.e., not later than July 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;

845 Brook Street, Rocky Hill, CT 06067
T 860.563.0015
InclusiveProsperityCapital.org

INCLUSIVE
PROSPERITY CAPITAL

Memo

To: Connecticut Green Bank Senior Team

From: Inclusive Prosperity Capital Staff

Date: June 13, 2022

Re: IPC Quarterly Reporting – Q3 FY22 (January 1, 2022 – March 31, 2022)

Progress to targets for Fiscal Year 2022, as of 03/31/2022 [1]

Product	Number of Projects	Projects Target	% to goal	Total Financed Amount	Financed Target	% to goal	MW Installed	MW Target	% to goal
Smart-E Loan	649	800	81.1%	$10,092,948	$11,200,000	90.1%	0.2	0.8	20%
Multi-Family H&S	0	1	0%	$0	$0	0%	n/a	n/a	n/a
Multi-Family Pre-Dev.	0	0	0%	$0	$0	0%	0.0	0.0	0%
Multi-Family Term	3	2	150%	$2,060,000[2]	$300,000	686.7.3%	0.9	0.20	450.0%
Solar PPA	3	23	13.0%	$1,338,753	$6,457,000	20.7%	0.7	3.4	8.8%
Solar For All[3]	351	96	365.6%	$9,960,894	$2,478,528	401.9%	2.4	0.7	343%

[1] Source: CT Green Bank PowerBI
[2] 100% of the financed amount was energy financing.
[3] This portfolio is considered "closed" as of the conclusion of the RSIP program in Fall 2021. The data has been revised down from the previous quarter to account for cancelled projects.

PSA 5410 – Smart-E Loan

- Volume slowed at the beginning of Q3, with 45 loans closed in each of January and February, but rebounded to 74 closed loans in March. The lower volume in January and February is consistent with the historical slowdown of new projects in winter months but was likely compounded by homeowners' reluctance to have contractors in their homes during the surging Omicron variant wave.
- Volume continued to be buoyed largely by HVAC projects (86%), then home performance (insulation and windows – 12%) and solar (2%).
- IPC staff worked with the CGB Accounting team to process 152 interest rate buydown requests, totaling $339,276 of ARRA-SEP funds. We anticipate that the total IRB spend for the two special offers that ran in FY21 will equal approximately $1.56M across about 725 loans. Remaining IRB payments should be processed in Q4.
- IPC staff worked closely with the CGB Senior team on the preparation and presentation of two memorandums to the Green Bank's Deployment Committee and Board of Directors focused on 1) reclassifying ARRA funds to Smart-E loan loss reserves and interest rate buydowns, and 2) the process for expanding Smart-E beyond clean energy and into environmental infrastructure.
- IPC staff participated in a meeting with CGB and DEEP, including Commissioner Dykes, focused on Smart-E expansion into environmental infrastructure. DEEP requested to be involved in the process. IPC will continue to support CGB on these efforts.

PSA 5411 – Multifamily

- **No projects closed in Q3**. Supporting the Green Bank, IPC staff continue to shepherd a handful of prospective LIME financing opportunities that are currently at the evaluation/underwriting stage.
- **The ECT Health & Safety Revolving Loan Fund capital has been fully allocated** to two distressed co-ops, both loans of which have been approved. (See further details below.)
- We are **anticipating further clarification from PURA and DEEP on the full suite of multifamily incentives** and corresponding requirements that will become available for multifamily properties serving low- and moderate-income residents (LMI) in CT. Once these are finalized, we will continue to collaborate with CTGB in revisiting program design for this sector, with an eye towards higher volume deployment that takes advantage of incentives that are more generous than previous years.
- **We continue to provide support for long-term projects, Seabury Co-op in New Haven and Success Village in Bridgeport**, that are being stabilized and preserved as affordable housing by funding energy and health and safety improvements. Seabury is moving towards the end of its respective pre-development processes and securing term financing for project implementation. Success Village has recently undergone governance and management changes that may impact how this project moves forward. The CT Green Bank and our funding partners continue to play a critical role as technical assistance providers and lenders of last resort in these projects.

PSA 5412 – Solar PPA

- Mandell JCC of West Hartford executed a PPA with CGB for $744K for the installation of a 374.8 kW solar PV system.
- IPC staff responded to PPA pricing requests received by CGB staff, particularly extensive scenarios to support the Solar MAP initiative.
- In consideration of a range of market intelligence regarding the maturity and competitiveness of the CT solar market, IPC has pivoted to a tighter approach on PPA pricing, which will be reflected in existing and future projects as directed in consultation with CGB.
- Fully integrated use of IPC Salesforce Platform into pricing request process with developers.
- IPC has closed its 2022 tax equity partnerships with Greenprint Capital. IPC expects to fund the full suite of Solar MAP Round 1 projects in this year's CT partnership.
- In light of Encon's intended departure from the solar market, IPC has contracted with All Electric Construction & Communication, LLC ("AEC") as an interim inspection and O&M services provider in CT.

PSA 5413 – Investment Management (LMI Solar and Green and Healthy Homes)

PosiGen Solar for All Program Management

- The CGB-IPC team has been focused on PosiGen's transition out of RSIP. With that program ended, work is focused on final issues resolution.

Green and Healthy Homes Project

- As noted in previous updates, the final report on the CT Medicaid ROI analysis and pilot design remains with the project team state agencies, including the CT Department of Public Health, for review and final sign-off. Currently waiting for the final partner sign off before releasing findings publicly. The CT Department of Public Health has been understandably focused on the pandemic and has not yet revisited the subject.

Investment Management

IPC staff supported Green Bank staff on the following financings:

- **PosiGen**:
  - Nothing to report

- **Residential SL2 and CT Soar Loan**:
  - An IPC staff member continued to assist with the management of CT Solar Lease 2 ("SL2") and CT Solar Loan tasks, though in an advisory role as many of the administrative tasks have been transitioned to a junior CGB employee.

Use of DEEP Proceeds

Energize CT Health & Safety Revolving Loan Fund

- The multifamily housing team is in process of finalizing loan documentation and closing two H&S loans to distressed co-ops: Seabury Co-op in New Haven for $892,500 (in

coordination with other funders) and Antillean Manor Co-op in New Haven for $400,000 (in coordination with CHFA and HUD). Both are anticipated to close in the June/July 2022 timeframe.

- DEEP has agreed to extend the ECT Health & Safety Revolving Loan Fund grant for an additional year, giving us the time needed to get funds deployed into these projects.

- The two loans described above account for the remaining H&S funds available. Once deployed, we will begin funding projects with capital as it becomes available from repayments.

$5M Capital Grant

- In Q1 FY20, IPC's Board approved a $1.2M investment in Capital for Change to provide liquidity under its successful LIME Loan program offered in partnership with the Connecticut Green Bank. Although the transaction was expected to close in February 2020 under a master facility construct with CGB, in the wake of the COVID-19 outbreak, CGB funded the entirety of the LIME recapitalization in IPC's stead. IPC will continue to monitor for favorable conditions for future investment.

General Updates

Below are updates for the third quarter of FY22:

- **Capital raising**:
  - Continue to operationalize the $25M credit facility with New York Green Bank, the first credit facility that accesses the Kresge Guarantee.
  - In diligence with a 4th PRI provider for $1.5M under same terms as 3 other foundations.
  - Received credit approval from a senior lender for $15M of senior debt against our Kresge Guarantee, scheduled to close by end of June.
  - Received an additional $50K for NGEN development under a DOE SETO grant (we are a vendor to Inclusiv and UNH).

- **Business/Product Development/Initiatives of interest to Connecticut**:
  - Software licensing agreement for the NGEN platform
    - Colorado Energy Office has transferred the program out of the state energy office to the CO Clean Energy Fund (their green bank) for easier contracting. Discussions back on for licensing NGEN.
    - Exploring NGEN licensing with CAETFA. However, contracting will be challenging and significant custom development would be required, which CAETFA would pay for.
    - Continued work with Inclusiv (the member network of CDFI/community development credit unions) and UNH Carsey (under a DOE grant) on a potential launch of a Smart-E programs in various geographies, many led by lender interest, some by green bank or state/local government interest.
    - Contracted with Inclusiv for Smart-E implementation in AZ, NM and TX, funding provided by Wells Fargo Foundation. This is for a lender-led model, meaning no green bank or state energy office sponsoring the program, and IPC being compensated to manage the program. The partners

are in the process of applying for a credit enhancement for participating lenders through the Community Investment Guarantee Program.
    - Received approval for a $720K 1-year grant for product development, platform development and pipeline-building for our affordable multifamily products. We will be a sub-grantee to UNH, funding provided by a major bank foundation. Contract expected by end of June.
    - Continued to work with a number of green banks, local governments, etc. on leveraging IPC's products and financing strategies. Developing multifamily pipeline with Philadelphia Green Capital Corp., continuing to work with MI Saves and DC Green Bank; continue to coordinate with CGC on a variety of opportunities.
    - IPC continues to participate in the following advisory councils/initiatives related to DOE grants or programs for expanded access to solar/solar financing:
        - Achieving Cooperative Community Equitable in Solar Sources (ACCESS) Stakeholder Group – National Rural Electric Cooperative Association (NRECA) is partnered with National Rural Utilities Cooperative Finance Corporation, CoBank and GRID Alternatives to make solar energy more affordable for LMI members of cooperatives. The project is engaging community and regional financial institutions.
        - NREL/NYSERDA Solar Finance Inclusion Initiative – focused on new financial products for solar energy. The financial products, described as flexible financial credit agreements (FFCAs), are focused on enabling greater participation in solar energy by LMI customers. The goal of the joint initiative is to devise ways to address persistent barriers by LMI customers solar such as income fluctuations, housing transitions or other issues.
        - Inclusive Shared Solar Initiative (ISSI) Advisory Board – the National Association of State Energy Officials (NASEO) and the National Energy Assistance Directors' Association (NEADA) seek to advance strategies that increase the scalability of LMI) community solar programs. The basis for ISSI is the NYS Solar for All program, a pilot sponsored by the NYSERDA, which improves access to community solar facilities for LMI households.
        - National Community Solar Partnership – a learning network of over 300 devoted to the expansion of community solar across the US.
    - IPC was asked to join a project team led by NRDC and including CT Green Bank, NYCEEC, Inclusiv, Opportunity Finance Network, Coalition for Green Capital and Forsyth Street Advisors. The project would expand on work conducted in 2019-2020 to explore whether the CDFI infrastructure/regulatory framework could be leveraged as a scaled source of low-cost, long-term capital for green banks – and now to include other CDFIs.
- **Administrative**:
    - IPC onboarded several new employees in January 2022:
        - Musa Collidge-Asad began joined as Chief Investment Officer – based in Bethesda, MD
        - David Ryan joined as Associate Director, Clean Energy Transactions – based in Dallas, TX
        - Claire Getman joined as Associate, Operations to support IPC's work on the Green Bank's Smart-E Loan program – based in Hartford, CT
        - Michael Solazzo joined as Investment Analyst, Clean Energy Finance – based in NYC

- IPC continued to recruit for additions to the Clean Energy Transactions teams, with hires expected in Q4.

May 6, 2022

U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Revolving Loan Fund Programs
EERevolvingLoanFund@ee.doe.gov

SUBJECT: Comments from the Connecticut Green Bank – Designing Equitable, Sustainable, and Effective Revolving Loan Fund Programs – DE-FOA-0002716

To Whom it May Concern:

The Connecticut Green Bank ("Green Bank") appreciates the U.S. Department of Energy's ("DOE") efforts through the Office of Energy Efficiency and Renewable Energy ("EERE") issuing this request for Information ("RFI") – Designing Equitable, Sustainable, and Effective Revolving Loan Fund Programs. The RFI is intended to inform the DOE on promising, innovative, and best practices for designing revolving loan funds ("RLF") – specifically for 42 U.S.C. 18792 – that effectively serve a wide array of borrowers with beneficial energy efficiency products and services and enable private sector capital to scale access to energy efficiency financing.

Through the American Recovery and Reinvestment Act ("ARRA") of 2009, the Green Bank invested $8.3 MM of federal funds, alongside $16.5 MM of Green Bank capital, to mobilize $158.1 MM of private investment for a total of $174.6 MM of investment to finance energy efficiency and renewable energy ("clean energy") projects for over 9,000 families – see attached fact sheet. The investment of federal funds, albethey credit enhancements (i.e., loan loss reserves ("LLR"), interest rate buydowns ("IRB")) and not RLF's, enabled 20 times more state and local private investment in clean energy deployment – reducing the burden of energy costs on families (especially those in vulnerable communities),[1] increasing jobs in our communities, and reducing greenhouse gas emissions.

ARRA provides a useful example for how local, state, and federal partnerships can unlock and mobilize multiples of private investment to increase the impact of taxpayer resources while maximizing the benefits to participants (e.g., reduce energy burden), ratepayers (e.g., reduce peak demand, increase energy security), and society (e.g., create jobs, reduce GHG emissions). As the DOE looks ahead at

[1] Per Public Act 20-05, vulnerable communities means populations that may be disproportionately impacted by the effects of climate change, including, but not limited to, low and moderate income communities, environmental justice communities pursuant to section 22a-20a, communities eligible for community reinvestment pursuant to section 36a-30 and the Community Reinvestment Act of 1977, 12 USC 2901 et seq., as amended from time to time, populations with increased risk and limited means to adapt to the effects of climate change, or as further defined by the Department of Energy and Environmental Protection in consultation with community representatives.

implementing the Bipartisan Infrastructure Law ("BIL"), including the RLF and other provisions, it should build on the lessons learned from ARRA, while advancing the Biden Administration's objectives (e.g., 100% clean electricity by 2035, Justice 40).

The Green Bank offers the following comments.

Category 1— Equitable Access to Financing

- **Question 1** —the Lawrence Berkeley National Laboratory ("LBNL") report[2] highlights two (2) program models for RLFs for residential energy efficiency financing – New York's "Green Jobs – Green New York" and Pennsylvania's "Keystone HELPS" – capitalized from bond proceeds from municipal bonds[3] and asset backed securities, respectively. The research report emphasizes that these carefully designed and administered energy efficiency loan programs – including Connecticut's "Smart-E Loan" and Michigan's "Michigan Saves" supported by federal funds as credit enhancements (i.e., not RLF's) – exhibit stronger performance than other similar loans and therefore capital providers and lenders should offer better terms (i.e., lower interest rates, longer tenors, or both), and that such lending can help support policy goals related to equitable access to capital such as Justice 40 and the Community Reinvestment Act[4] compliance requirements. The DOE should look to this report, and the four residential energy efficiency financing programs highlighted, for design elements that result in equitable access and greater energy and environmental justice for residential end-use customers.

  Although not an RLF, the Green Bank's Smart-E Loan[5] was developed in collaboration with local contractors and capital providers (i.e., community banks, credit unions ("CU"), community development financial institutions ("CDFI")) through the use of ARRA funds. With the Green Bank goal by 2025 of no less than 40 percent of investment and benefits from financing and incentive programs being directed to vulnerable communities, the Smart-E Loan is making steady progress – see Table 1.

Table 1. Smart-E Loan Data for Investment and Projects for Vulnerable Communities

Investment ($MM's)			**# of Projects**		
Not Vulnerable Communities	Vulnerable Communities	% Vulnerable Communities	Not Vulnerable Communities	Vulnerable Communities	% Vulnerable Communities
$65.6	$34.4	34%	3,204	2,216	41%

- **Question 2 —** with respect to residential clean energy financing, there are several other programs the Green Bank administers(ed) that use public capital as debt in a capital structure (e.g., subordinated debt) that act(ed) like RLF's – see Table 2.

[2] State and Local Energy Efficiency Action Network (SEE Action). (2021). *Long-Term Performance of Energy Efficiency Loan portfolios.* Prepared by: Jeff Deason, Greg Leventis, and Sean Murphy of Lawrence Berkeley National Laboratory.

[3] Secured by the Clean Water State Revolving Fund

[4] The Community Reinvestment Act (CRA), enacted in 1977, requires the Federal Reserve and other federal banking regulators to encourage financial institutions to help meet the credit needs of the communities in which they do business, including low- and moderate-income (LMI) neighborhoods (i.e., less than 80% area median income).

[5] https://www.ctgreenbank.com/wp-content/uploads/2021/11/FY21-CGB-ACFR-Final-11.08.21.pdf (p. 243)

Table 2. Green Bank Residential Clean Energy Financing Programs by Investment and Projects for Vulnerable Communities

Program	Investment ($MM's)			# of Projects		
	Not Vulnerable Communities	Vulnerable Communities	% Vulnerable Communities	Not Vulnerable Communities	Vulnerable Communities	% Vulnerable Communities
CT Solar Loan[6]	$6.7	$2.4	26%	197	82	29%
CT Solar Lease[7]	$30.2	$16.1	35%	746	443	37%
Solar for All[8]	$27.9	$90.5	76%	929	3,363	78%

It should be noted, that not all clean energy financing programs are (were) focused on driving equitable access to energy efficiency financing. However, Solar for All, a partnership between the Connecticut Green Bank and PosiGen, is a lease product for solar PV and energy efficiency targeted at vulnerable communities.

The DOE should look to reports from LBNL for other financing tools that are driving equitable access to clean energy financing that can be extrapolated to answer this important question, including solar PV financing and the role of incentives.[9][10] As the DOE looks to enable RLF to mobilize greater private investment in energy efficiency, it should also look to non-financing tools such as the Weatherization Assistance Program ("WAP")[11] for funding that provides incentives (i.e., grants) that can also play a role in increasing equitable access to energy efficiency. Given the market for weatherization is approximately 39.5 million households requiring between $300-$400 billion of investment, the DOE needs to see RLFs in a manner that mobilizes private investment and not simply grant out such resources if we are to achieve such high targets.

- **Question 3** — RLF program administrators should include partnerships with local, state, and nonprofit green banks, climate banks, or other public or nonprofit CDFI's to ensure that prospective borrowers leverage all appropriate incentives before taking on debt. As noted above, carefully designed and administered energy efficiency loan programs exhibit strong performance (e.g., loan repayment). Potential borrowers should always take advantage of local, state, and federal incentives, including tax credits, before taking on debt in order to reduce debt service payments and reduce energy burden.

  It should be noted that eligible recipients under 42 U.S.C. 18792 are small to medium sized manufacturers. To maximize support for such manufacturers, innovative public-private partnership approaches that mobilize private investment should be allowed, including partnerships with local, state, and nonprofit green banks, climate banks, or other CDFI's as intermediaries to directly or indirectly channel DOE RLF program to support financing.

[6] Ibid (p. 316)
[7] Ibid (p. 332)
[8] Ibid (p.266)
[9] (May 2021). *Performance of Solar Leasing for Low- and Middle-Income Customers in Connecticut*. Prepared by Jeff Deason, Greg Leventis, and Sean Murphy of Lawrence Berkeley National Laboratory.
[10] (April 2022). *Rooftop Solar Incentives Remain Effective for Low- and Moderate-Income Adoption.* Prepared by Eric O'Shaughnessy of Lawrence Berkeley National Laboratory.
[11] "Biden Administration Announces New Funding to Make Homes Energy-Efficient" by Anna Phillips of The Washington Post (March 30, 2022)

In Connecticut, there are two (2) energy efficiency financing programs for small and medium sized manufacturers, including:

a. **Small Business Energy Advantage** ("SBEA")[12] – through a partnership with Eversource Energy[13] and Amalgamated Bank,[14] the Green Bank supports the SBEA program – an on-bill, zero-percent interest rate, an "RLF-like" program for small businesses (i.e., commercial and industrial, non-profits, municipalities and state agency customers that use less than 1,000,000 kWh a year across all their properties). SBEA provides financing for up to 7 years for up to $1.0 MM per business customer. The Connecticut Energy Efficiency Fund (a statutorily established fund replenished by a small recurring charge on electric and gas utility ratepayer bills) provides funds for an interest rate buydown (to 0%) and to absorb any loan losses (historically ~1% of outstanding loan balances per annum). Over the past three years, SBEA, through utility managed installation contractors, has provided nearly 5,400 on-bill financings totaling $67.4 MM (of which 90% is financed by Amalgamated Bank) with an estimated 1.8 GWh of energy savings over the life of the measures. Due to its success, this partnership was recently renewed for an additional 3 years to 12/31/2024.

b. **Commercial Property Assessed Clean Energy** ("C-PACE")[15] – through a partnership with over twenty (20) qualified capital providers and 137 (of 169) of Connecticut's municipalities, the Green Bank administers the C-PACE program – a benefit assessment lien to finance clean energy improvements on commercial, industrial, and multifamily properties. C-PACE, an RLF-like program, provides financing up to 25 years. Since its inception in 2013, C-PACE has provided nearly 350 financings totaling $220.1 MM (of which 75% is from private capital) and an estimated 4.1 million MMBtu of clean energy production or energy savings over the life of the measures delivering a savings to investment ratio greater than 1. Green Bank capital for the program is provided primarily from funds provided by the Regional Greenhouse Gas Initiative (RGGI) as well as through securitization of the loan receivables with private capital sources.

RLF offered through the program should support utility on-bill financing programs, C-PACE, and bridge, construction, term, off-taker, and secondary capital loans – and consideration should be given to allowing such RLF to be used as credit enhancements (i.e., interest rate buydowns, loan loss reserves) to lower the cost of and increase access to private capital.

- **Question 4 —** To be successful, any RLF program should enable borrowers to access funding in a straightforward manner. Contractor-installers should be trained periodically on how to educate their customers about available financing options and be able to assist their customers in the loan application process. This application process should be "cloud-based" to not only simplify the submission of borrower information, but also to enable proper tracking of the underwriting process. While interest rates needn't be "0%" – programs that have a uniform and simplified underwriting process with credit loss reserves will ensure the program has access to the lowest cost capital for maturities that best match the expected useful lives of the projects being financed. Applications for smaller commercial loan sizes (such as up to $100,000 as with the SBEA program mentioned

[12] https://www.ctgreenbank.com/wp-content/uploads/2021/11/FY21-CGB-ACFR-Final-11.08.21.pdf (p. 303)
[13] www.eversource.com
[14] www.amalgamatedbank.com
[15] https://www.ctgreenbank.com/wp-content/uploads/2021/11/FY21-CGB-ACFR-Final-11.08.21.pdf (p. 180)

above) will benefit greatly from a simplified underwriting process (for example, needing to be current on one's utility bill with no more than 2 late payments within the past 18 months). Consumer (homeowner) loan processes (typically not exceeding $50,000) are well-established with standard FICO (and potentially income verified) underwriting criteria. Larger commercial transactions (such as with C-PACE) require underwriting that is commonplace for small business administration ("SBA") loans, which would include disclosure of the most recent 2 years of audited financial information (or the submission of federal tax returns along with financial statements that have not been audited), an appraisal and a high-level environmental assessment for the property being improved (assuming the property is being used to provide security for the loan). Whatever the process, processing the application expeditiously will promote better program deployment success.

- **Question 5** — Private capital is available to residential, commercial, and industrial borrowers anywhere in the United States from a variety of capital providers, including community and national banks, credit unions, "fin-tech" lending companies, leasing companies, and state or utility-sponsored loan programs, to name a few. However, the terms and conditions of lenders, given the actual (or perceived) risks of potential borrowers, the type of improvements (e.g., energy efficiency and heat pumps vs solar PV for instance) can be relatively loose and inexpensive for highly creditworthy borrowers for short-term loans, or more stringent (and at a considerably higher interest rate) for less creditworthy borrowers for longer-term loans. Structures that are not construed as debt (such as solar PV power purchase agreements or "pay as you save" (PAYS) programs) are likely to result in better deployment in vulnerable communities where residents may already be at their credit limit. Easy and affordable access to borrowing will determine the likelihood of underserved markets in realizing the benefits from clean energy deployment.

  There is an important role that public or community-based financial institutions such as green banks, credit unions, and CDFI's can play – to leverage federal RLF into financing programs that provide access to private capital for eligible recipients.

- **Question 6** — carefully designed and administered energy efficiency loan programs by electric and natural gas distribution companies,[16] local, state, and nonprofit green banks,[17][18] climate banks, or other public or nonprofit CDFI's, establish contractor pre-qualification conditions or labor standards, as well as technical review, to ensure that high-quality workmanship delivers the intended energy savings to consumers. Typically guided by state policy or energy regulation to deliver all cost-effective energy efficiency, program administrators ensure high-quality workmanship and delivery of energy savings to participating consumers.

IMPORTANT NOTE
The Green Bank is willing and able to speak with the DOE staff in detail about any of these residential and commercial clean energy financing programs as appropriate and would invite the

[16] Small Business Energy Advantage – https://energizect.com/find-a-contractor
[17] Smart-E Loan – https://www.ctgreenbank.com/programs/find-a-contractor/
[18] Commercial Property Assessed Clean Energy – https://www.cpace.com/capital-provider/resource-center/approved-technical-reviewers/

DOE staff to review the "Use Cases" describing these financing programs in detail within its Annual Comprehensive Financial Report for FY21.[19]

Category 2 – Program Success & Sustainability

- **Question 7** – the following is a breakdown of Green Bank program models and design factors in response to the RFI questions:

    a. **Small Business Energy Advantage** – beginning with a no-cost energy assessment[20] to receiving combination of upfront incentives and access to on-bill financing for the remainder of the installed costs.[21]

    b. **Commercial Property Assessed Clean Energy** – easy and affordable access to private capital (and public capital from Green Bank), including, in collaboration with the Connecticut Department of Economic and Community Development, additional incentives provided to manufacturers through Energy On the Line.[22]

    c. **Decarbonization** – the Green Bank has established impact methodologies to measure decarbonization[23] and the public health benefits[24] resulting from reduced air pollution as a result of clean energy deployment through its financing programs – see Table 3.

Table 3. Decarbonization and Public Health Benefits from Reduced Air Pollution

Program	Sector	Decarbonization (LT Avoided MMTCO2e)	Air Pollution (LT Avoided Pounds)[25]	Public Health Savings ($MM)
Smart-E Loan	Residential	281,623	521,373	$8.7-$19.6
CT Solar Loan	Residential	35,018	103,089	$1.2-$2.7
CT Solar Lease	Residential	154,900	381,464	$5.3-$11.9
Solar for All	Residential	700,785	1,287,120	$20.5-$46.5
SBEA	C&I	-	-	-
C-PACE	C&I	851,192	1,704,781	$24.9-$56.4

The DOE, working with the Environmental Protection Agency ("EPA"), can develop similar impact methodologies to measure decarbonization and public health as a result of federal funds increasing private investment in clean energy deployment. It will be imperative for the DOE to collect data (e.g., estimate annual and lifetime energy savings, including kW, kWh, and MMBtu) from RLF partners to measure progress towards decarbonization, air quality, and public health goals.

[19] https://www.ctgreenbank.com/wp-content/uploads/2021/11/FY21-CGB-ACFR-Final-11.08.21.pdf
[20] https://www.eversource-ct.com/small-business/
[21] https://energizect.com/your-business/solutions-list/Small-Business-Energy-Advantage
[22] https://www.energyontheline.com/
[23] https://www.ctgreenbank.com/wp-content/uploads/2018/01/CGB-Eval-IMPACT-091917-Bv2.pdf
[24] https://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB-Eval-PUBLICHEALTH-1-25-18-new.pdf
[25] Includes NOx, SOx, and $PM_{2.5}$

d. **Job Creation** – the Green Bank has established impact methodologies to measure job creation,[2627] including tax revenue generation,[28] as a result of increased investment in clean energy deployment – see Table 4.

Table 4. Job Creation Benefits

Program	Sector	Direct (Job-Years)	Indirect and Induced (Job-Years)	Total (Job-Years)	Tax Revenue Generation ($MM)
Smart-E Loan	Residential	522	716	1,239	$6.0
CT Solar Loan	Residential	51	82	132	$0.5
CT Solar Lease	Residential	221	356	577	$2.4
Solar for All	Residential	482	644	1,126	$2.9
SBEA	C&I	73	115	188	$7.2
C-PACE	C&I	936	1,354	2,290	$16.2

Again, it will be important for the DOE to collect data (e.g., public and private investment by measure) from and for RLF partners to report data in order to measure progress towards job creation goals.

With the assistance of [bw] Research Partnership, the Green Bank, and our electric and gas distribution partners (i.e., Eversource Energy and United Illuminating), tracks the clean energy workforce in Connecticut by diversity and union.[29] In 2021, Public Act 21-43 "An Act Concerning a Just Transition to Climate-Protective Energy Production and Community Investment" was passed in Connecticut requiring clean energy developers of certain projects (i.e., Class I renewable energy resources that exceed 2 MW in capacity), to establish a workforce development program, enter into community benefit agreements, and ensure that contractors and subcontractors on projects meet certain criteria. It is important to note that this is for large-scale clean energy projects and not energy efficiency.

e. **Upskilling Opportunities** – no comment

f. **Self-Sustaining** – as noted above, the Green Bank invested ARRA funds as credit enhancements (i.e., LLR, IRB) and not RLF's. And although those ARRA resources weren't used as RLF's, their impact in mobilizing private investment was extraordinary. For a detailed description of the self-sustaining impact beyond capitalization/federal funding, see the attached fact sheet entitled "The Impact of Federal Funds in Connecticut," and note on the second side entitled "Financing Programs with Federal Funds" how the use of ARRA funds as credit enhancements, led to self-sustainable private investment through the Green Bank.

- **Question 8** — as a Co-Chair of the Financing Solutions Working Group of the State Energy Efficiency Action Network ("SEE Action Network"),[30] there are a number of resources that

[26] https://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB_DECD_Jobs-Study_Fact-Sheet.pdf
[27] https://www.ctgreenbank.com/wp-content/uploads/2017/02/CTGReenBank-Clean-Energy-Jobs-CT-August102016.pdf
[28] https://www.ctgreenbank.com/wp-content/uploads/2018/09/CGB-Eval-Tax-Methodology-7-24-18.pdf
[29] https://www.ctgreenbank.com/wp-content/uploads/2020/11/2020-Connecticut-Clean-Energy-Industry-Report.pdf (p. 33)
[30] Bryan Garcia, President and CEO of the Connecticut Green Bank

can be reviewed to identify the lessons learned from successful and unsuccessful RLF programs, including, but not limited to:

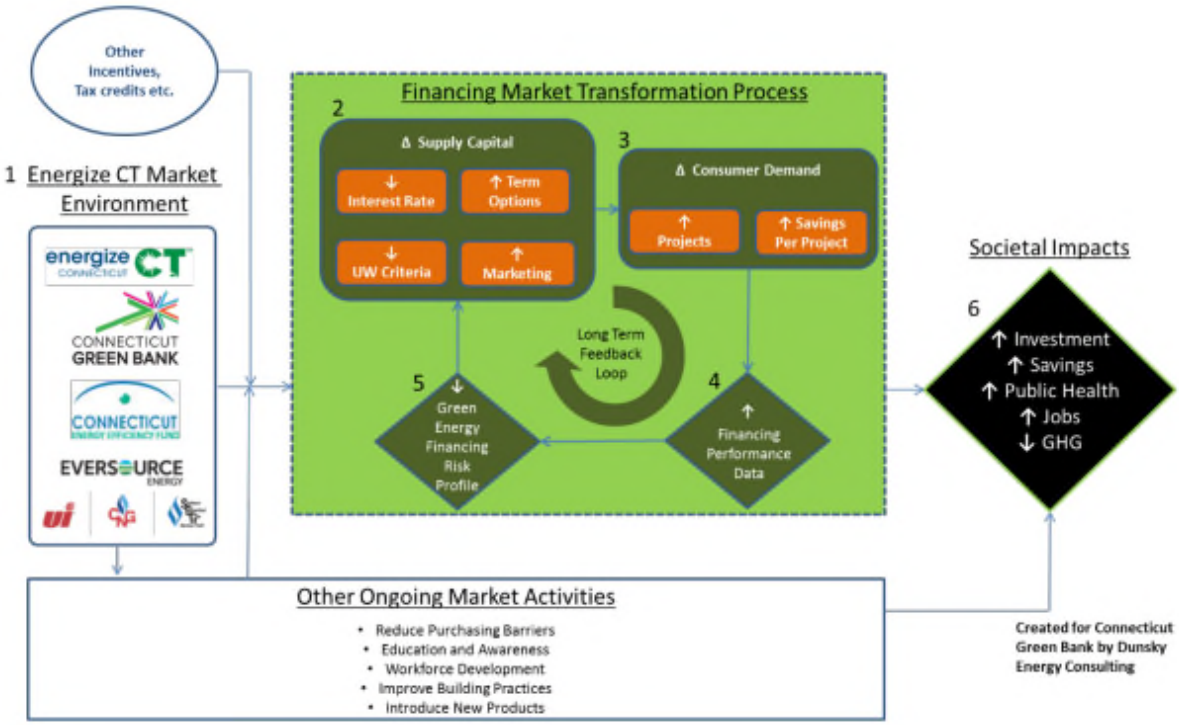
- Energy Efficiency Financing for Low- and Moderate-Income (LMI) Households: Current State of the Market, Issues, and Opportunities (August 2017)[31]
- Making it Count: Understanding the Calue of Energy Efficiency Financing Programs Funded by Utility Customers (December 2015)[32]
- Accessing Secondary Markets as a Capital Source for Energy Efficiency Finance Programs: Program Design Considerations for Policymakers and Administrators (February 2015)[33]
- Energy Efficiency Finance Programs: Use Case Analysis to Define Data Needs and Guidelines (July 2014)[34]
- Financing Energy Improvements on Utility Bills: Market Updates and Key program Design Considerations for Policymakers and Administrators (May 2014)[35]
- Energy Efficiency Financing Program Implementation Primer (January 2014)[36]
- Credit Enhance Overview Guide (January 2014)[37]

The DOE should review these reports to identify relevant lessons learned that can inform RLF program design.

- **Question 9** —reducing asymmetric information by requiring that all data from federally-funded RLF programs be collected, made available, and publicly disclosed will reduce the perception of risk by private lenders and encourage more competition in the marketplace. Increased competition is good for borrowers as this should result in increased access to capital, lower interest rates, more term options, better underwriting criteria, greater marketing by financial institutions, and other benefits, including an increase in demand for clean energy projects and measures by consumers – see Figure 1.[38]

[31] https://www.energy.gov/sites/default/files/2021-07/ee-financing-lmi.pdf
[32] https://www.energy.gov/sites/default/files/2021-07/making-it-count-final-v2.pdf
[33] https://www.energy.gov/sites/default/files/2021-07/accessing-secondary-markets-ee-finance.pdf
[34] https://www.energy.gov/sites/default/files/2021-07/energy-efficiency-finance-programs.pdf
[35] https://www.energy.gov/sites/default/files/2021-07/financing-energy-improvements-utility-bills-market.pdf
[36] https://www.energy.gov/sites/default/files/2021-07/ee-financing-program-implementation-primer.pdf
[37] https://www.energy.gov/sites/default/files/2021-07/credit_enhancement_guide.pdf
[38] https://www.ctgreenbank.com/wp-content/uploads/2017/02/CTGreenBank-Evaluation-Framework-July-2016.pdf

Figure 1. Program Logic Model of the Connecticut Green Bank – Financing Market Transformation Process



Instilling greater confidence to private lenders that investment in the program provides acceptable levels of risk and benefits requires engagement from local and state entities and the utilities. For example, the Smart-E Loan in Connecticut, is supported by the Green Bank providing technical assistance in terms of eligible clean energy and energy efficiency measures consistent with the public policy of the state, and qualifying eligible contractors who are trained and don't have poor records with respect to consumer protection violations.

- **Question 10** – see response to Question 6.

IMPORTANT NOTE
Over the years, the Green Bank has been asked by local and state governments about how they could develop and/or use the social and environmental impact methodologies developed by the Green Bank to communicate the benefits of clean energy deployment. The Green Bank staff is willing and able to meet with the DOE staff as appropriate, with respect to its impact methodologies, including its program logic model for financing market transformation that guides data collection and reporting.

Category 3 – Supporting Tools & Resources

- **Question 11** — long-term success of RLFs in reaching more low- and moderate-income, underserved, or disadvantaged communities, occurs when the investment of such funds develop local funding ecosystems, including, but not limited to incentives (i.e., electric and gas distribution companies), tax credits (e.g., sales, property, investment), and credit enhancements for financing (e.g., loan loss reserves, interest rate buydowns). Easy and affordable access to capital, in its various forms from funding (i.e., grants) to financing (i.e., loans), provides end-use

customers and their contractors with the financial resources they need to develop, construct, commission, and operate such systems.

- **Question 12** —see response to Question 21.

- **Question 13** – this is not an area of expertise of the Green Bank, however, we would offer the following observations:

    - **Financial Institutions** – encouraging partnerships between local and state governments with financial institutions that share these objectives given their corporate structure (e.g., Amalgamated Bank[39]) and/or their commitment to CRA (e.g., Liberty Bank, Webster Bank, KeyBank) may improve pay, unionization, and increased access to disadvantaged workers.

    - **US Energy and Employment Jobs Report** ("USEER") – the DOE, working in collaboration with the National Association of State Energy Offices ("NASEO"), Energy Futures Initiative, and [bw] Research Partnership produce information on state-level and national jobs in the clean energy industry. The DOE should increase its support of this research to track key information over time (e.g., unionized workers, compensation) to monitor progress. The Green Bank would like to thank the DOE for its continued support of such research efforts as it helps states track jobs in the clean energy industry.[40]

- **Questions 14** – this is not an area of expertise of the Green Bank, however, we would offer the following observation:

  There are several federal auditing tools that are useful for residential (i.e., Home Energy Score) and non-residential (i.e., Energy Star Benchmarking) end-use customers. The DOE should not limit data collection, auditing, modelling and sales tools to government platforms, but should encourage innovation in such tools.

  What is important to note is that any data collected as a result of RLF support for residential, commercial, and industrial projects should be made publicly available to the DOE. For example, the data collected by the Green Bank from the Smart-E Loan, supported by credit enhancements from ARRA, were made available to LBNL for scientific research purposes. Reducing asymmetric information should be an important outcome for the DOE in terms of loan and energy savings performance through the RLF because it increases competition in the market for easy and affordable access to capital to consumers and contractors.

- **Question 15** – see various responses above.

  As local and state, nonprofit and utility administrators of clean energy programs know, the qualification and eligibility of contractors to access and operate within incentive programs is important and essential.

[39] Founded in 1923 by the Amalgamated Clothing Workers of America, Amalgamated Bank is the largest union-owned bank and one of the only unionized banks in the United States. It is currently majority owned by Workers United and SEIU Affiliate.

[40] https://www.ctgreenbank.com/wp-content/uploads/2022/01/2021-CT-Clean-Energy-Industry-Report.pdf

Beyond demonstrating local certifications (e.g., journeyman licenses, including E-2, PV-2, and STC-2 Licenses in Connecticut) and standards, frequent and random project inspections are important to ensure proper installation and operation of projects. By inspecting new contractors and randomly inspecting old contractors in the program, program administrators are able to improve consumer protections and increase energy savings from such projects.

- **Questions 16** – as the DOE knows, there are various ways to track program success and impacts while relieving burden on contractors and programs. The following are the key pieces of data that are essential to collect to estimate E^4 impact – see Table 5.

Table 5. Data Collection to Compute Success and Impact

	Economy	Energy	Environment	Equity
Installed Cost	x			
Project Type	x			
Installed Capacity		x	x	x
Location	x			x

  - **Economy** – per every $1.0 MM invested in funding (i.e., grants) and financing (i.e., loans) from public and private sources of capital in various clean energy projects (e.g., renewable energy, energy efficiency) direct, indirect and induced jobs years and sales, property, corporate, and individual tax revenues can be estimated.

  - **Energy** – based on the installed capacity of a project, including its estimated production (i.e., kWh) and/or savings (i.e., MMBtu), and the energy consumption of participating residential, commercial, and industrial end-use electric and gas customers, the energy burden and security can be calculated depending upon the rate structure.

  - **Environment** – based on the estimated production and/or savings of such systems, using tools developed by the EPA, an estimate of GHG and criteria pollutant emissions avoided and the associated public health benefits from cleaner air (e.g., reduced sick days, hospitalizations, deaths) can be estimated.

  - **Equity** – if data on income and race is not being collected, then the location of a project with respect to census tract can enable an estimate of what families and businesses are benefitting from such investment in and deployment of clean energy.

For further details, see "Decennial Societal Impact Report" fact sheet.

IMPORTANT NOTE
DOE should consider providing technical assistance to local and state governments and/or developing standardized methodologies for impact tracking and reporting based on the data it collects from investment through the BIL and other programs. Given its experience, the Green Bank is willing to assist the DOE as appropriate.

Category 4 – Job Quality, Buy America, and Climate Impact

- **Question 17** — the RLF, might impact a region's workforce by:

    a. **Job Growth and Quality** – if the RLF is able to unlock and leverage multiples of private investment, then it is able to increase the capacity to lend to projects and increase job growth and quality. For example, if $10.0 MM were available for an RLF that has no ability to mobilize additional private investment and revolves every 4 years, then in Connecticut, such a facility could support 62 direct jobs from commercial energy efficiency projects every 4 years.[41] However, if the $10.0 MM RLF were able to be invested through a green bank as subordinated debt within a capital structure (e.g., 10-20 percent) in partnership with a private lender (e.g., 80-90 percent) as senior debt, then 4-9 times more capital would be available for projects thereby supporting a $50.0-$100.0 MM RLF facility that could support 248-558 additional direct jobs. This is the capital structure of the SBEA program noted above (i.e. response to 3a). More capital available and deployed in projects leads to job growth – and an increase in the supply of projects in a market, results in an increase in job quality (e.g., compensation) as the competition for labor increases.

    b. **Construction Jobs** – as noted above, a $10.0 MM RLF without mobilizing private investment versus a $50.0-$100.0 MM RLF whose $10.0 MM of investment is subordinated to $40.0-$90.0 MM of private investment as senior debt, would produce an additional 248-558 more direct (i.e., construction) and 320-720 indirect and induced jobs. Greater and easier access to affordable capital fosters the sustained orderly development of a local construction industry.

    c. **Prevailing Wage Requirement** – a considerable amount of deployment for projects for SMEs and residential homeowners are accomplished by less substantial local contractors that generally lack the wherewithal to comply with Davis Bacon prevailing wage requirements. We would recommend that, like ARRA, that there be categorical exclusions for such requirements related to the size of such projects. Where Davis Bacon prevailing wage requirements will apply, compliance protocols for such requirements should be made as straightforward as possible with readily-available technical assistance for contractors (particularly those contractors with annual revenues below a certain threshold (for instance).

        The Green Bank, working with [bw] Research Partnership, EDCs, DEEP, and Connecticut Department of Labor, broadly collect wage and benefit (i.e., health care and retirement) data to discern how the clean energy economy is supporting families.[42]

- **Question 18** —in general, residential and commercial energy efficiency projects tend to use Energy Star products. Beyond the procurement of these Energy Star products from domestic or foreign sources (e.g., LG appliance manufacturing plant in the U.S.), project developers typically don't track the domestic or foreign procurement of iron, steel, cement or other construction materials for a project outside of the model and serial information collected on an invoice.

[41] https://www.ctgreenbank.com/wp-content/uploads/2017/02/CTGReenBank-Clean-Energy-Jobs-CT-August102016.pdf
[42] https://www1.ctdol.state.ct.us/lmi/green/CTGreenBank.asp

- **Question 19** – this is beyond the expertise of the Green Bank, however there are a number of ways an RLF could encourage procurement of domestic products and materials, including, but not limited to:

    - **Additional Pool of Resources** – the DOE could allow RLF program administrators to access a pool of additional resources to lower interest rates (e.g., first-come, first-serve);

    - **Federal Procurement** – given the procurement power of the federal government, long-term contracts could create competitive domestic markets that can help local and state governments, utilities, developers, and others procure lower cost products and materials that are domestically manufactured (e.g., buyers pool); and/or

    - **Innovative Customer Acquisition Strategies** – as demonstrated through the SunShot Program, and its support of community-based Solarize campaigns, customers could be given a pricing choice by contractors to offer two bid prices – including a conventional lowest bid price versus a bid price that includes American made products and materials allowing the customer to decide.

  It should be noted that although well intended, adding additional domestic manufactured requirements may have unintended consequences (e.g., reduce customer participation) that would reduce economic activity across the market (e.g., installation of projects).

- **Questions 20** – the RLF could encourage the use of funds for beneficial electrification by lowering interest rates. For example, the Smart-E Loan used ARRA funds as interest rate buydowns to catalyze the market for weatherization in combination with air source heat pumps and Energy Star windows. If RLF are to be used to finance projects that are reliant on fossil fuels, then equipment installed should be more efficient than what it is displacing.

  It should be noted that the transition to beneficial electrification will not only put additional stress on the electric grid (i.e., increase demand, specifically peak demand), but it will also adversely impact small businesses, typically family-owned businesses, that are being displaced as a result of this shift in technology. The DOE should provide additional technical assistance (e.g., workforce development) to enable a just transition for those small businesses currently focused on installing fossil-fuel powered equipment.

Category 5 – Open Response on Revolving Loan Fund Program Design

- **Question 21 —** with the objective to maximize the impact that BIL provides to help as many families and businesses as possible, within future formula grant or competitive RFPs in support of Sections 40209, 40502, and similar programs, we would recommend language along the following be included within the program documentation:

  In its effort to maximize support to the most families and SME's as possible, the DOE seeks innovative public-private partnership approaches that mobilize private investment, including, but not limited to the following:

    - *technical assistance (i.e., focus on Justice 40 and Just Transition)*
    - *predevelopment capital*

- *credit enhancements (i.e., interest rate buydowns, loan loss reserve funds)*
- *revolving loan funds*
- *participation agreements to lower cost of and increase access to private capital*
- *utility on-bill financing programs*
- *commercial property assessed clean energy*
- *bridge, construction, term, off-taker, and secondary capital loans*
- *partnerships with local, state, and nonprofit green banks, climate banks, or other public or nonprofit community development financial institutions, as intermediaries to directly or indirectly channel financing to SME's, including meaningful involvement of veteran, minority, women, and disabled-owned businesses*

Also, separate from this RFI, the Green Bank would recommend DOE consider the following aspects of supporting local and state efforts to unlock private investment to support the deployment of clean energy for families and businesses:

- **National Loan Loss Reserve Fund** – through an "across government" strategy, the DOE's Loan Program Office ("LPO")[43] working with the U.S. Department of Treasury's Community Reinvestment Act ("CRA") division, has the potential to mobilize billions of dollars of public and private investment that will be needed in order to achieve the Biden Administration's ambitious objectives. Work with leading green banks at the local and state-level focused on credit enhancement strategies (e.g., CT, HI, IL, Montgomery County) and non-profit organizations (e.g., Inclusive Prosperity Capital, Inclusiv, Michigan Saves, SELF) to develop a standardized "opt-in" program to enable easy and affordable access to capital to finance clean energy improvements for families and businesses with a priority focus on Justice 40 (e.g., vulnerable communities).

- **Credit Enhancements** – the importance of loan loss reserves ("LLR") in attracting private capital investment and interest rate buydowns ("IRB") in catalyzing contractor deployment of clean energy, are two key lessons from ARRA that should be advanced through RLF mechanisms. Although not an RLF per se, credit enhancements have the potential to engage local lenders to invest their private capital in clean energy markets. As those investments yield returns, local lenders will continue to invest private capital in clean energy market development revolving their own capital sources by continuously investing in the clean energy economy above and beyond local, state, and national government resources.

- **Cost-Effectiveness Testing** – conventional utility or third-party administered energy conservation and load management incentive programs are designed using cost-effectiveness testing (e.g., National Standard Practice Manual).[44] This approach allows for various benefit-cost analyses ("BCA") including, but not limited to Participant Cost Test ("PCT"), Program Administrator Cost Test ("PACT"), Total Resource Cost Test ("TRC"), Societal Cost Test ("SCT"), and Ratepayer Impact Measure ("RIM"). Prioritizing

[43] LPO authority to work with local and state government was expanded under Sec. 40401(c)(2) of the BIL amending the terms and conditions of Title 17 loans to include projects receiving financial support or credit enhancements from state energy financing institutions as eligible projects, and that such projects are not required to meet Section 1703(a)(2)'s requirement for new or significantly improved technologies, but instead meet emissions requirements.

[44] https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/

vulnerable communities to achieve Justice 40 objectives, could be justified by providing additional incentives to such communities using the cost-effectiveness framework. For example, Energy Storage Solutions in Connecticut, prioritizes low-income households, households located in distressed communities, and affordable housing by receiving additional incentives justified by the BCA framework which should result in an increase in deployment in vulnerable communities.[45] DOE could provide technical assistance to states to support the analytical framework for higher incentives for vulnerable communities for such distributed energy resources such as solar PV + battery storage that both reduce energy burden and increase energy security for vulnerable communities.

IMPORTANT NOTE
The Green Bank would request to meet with the DOE staff for 30-minutes to discuss how a National Loan Loss Reserve and/or Credit Enhancements (e.g., LLR, IRB) strategy could unlock private capital investment at the scale necessary to achieve the ambitious Biden Administration policies.

The Green Bank appreciates the DOE's efforts to solicit public comment on the pending RLF request for proposals. We look forward to working with our public and private capital partners to submit an application, where appropriate, for consideration into the Revolving Loan Fund Program formula or competitive grant solicitation(s).

Sincerely,

Bryan Garcia
Bryan Garcia
President and CEO

Bert Hunter
Bert Hunter
EVP and CIO

About the Connecticut Green Bank
As the nation's first state-level green bank, the Connecticut Green Bank leverages the limited public resources it receives to attract multiples of private investment to scale up clean energy deployment. Since its inception, the Green Bank has mobilized $2.14 billion of investment into Connecticut's clean energy economy at a 7.4 to 1 leverage ratio of private to public funds, supported the creation of 25,612 direct, indirect and induced jobs, reduced the energy burden on over 63,000 families and businesses, deployed over 494 MW of clean renewable energy, helped avoid 9.9 million tons of CO_2 emissions over the life of the projects, and generated $107.4 million in individual income, corporate, and sales tax revenues to the State of Connecticut.

Attachments
A. Green Bank – Fact Sheet
B. Decennial Societal Impact Report – Fact Sheet
C. The Impact of Federal Funds in Connecticut – Fact Sheet

[45] https://www.cleanegroup.org/webinar/connecticuts-new-energy-storage-solutions-program/

ATTACHMENT A

CONNECTICUT GREEN BANK

Connecticut Green Bank is the nation's first green bank. Our mission is to confront climate change and provide all of society with a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy. Established in 2011 as a quasi-public agency, the Green Bank uses limited public dollars to attract private capital investment and offers green solutions that help people, businesses and all of Connecticut thrive.

our solutions

The Green Bank is helping Connecticut flourish by offering green solutions for homes and buildings, and by creating innovative ways to invest in the green economy.

CONNECTICUT GREEN BANK HOME SOLUTIONS

homes

Empowering all Connecticut families and households with accessible and affordable green solutions that bring them comfort and security. Find incentives for battery storage or use the Green Bank's flexible financing to reduce costs with health and safety improvements and the newest energy efficient technologies.

CONNECTICUT GREEN BANK BUILDING SOLUTIONS

buildings

Creating stronger, more resilient communities with green solutions for buildings of all types, from businesses and nonprofits to multifamily housing and local government. Leverage Green Bank financing to save money and realize the benefits of more modern, sustainable buildings.

CONNECTICUT GREEN BANK INVESTMENT SOLUTIONS

investments

Securing a healthier planet with smart ways for individuals and businesses to invest in green solutions – and our future – while also earning a return. Energize the green economy by investing in it today. Buy a Green Liberty Bond, invest through a crowdfunding offering, or join the movement by finding other ways to invest.

Get Started. Call 860.563.0015 or visit ctgreenbank.com 08-21

ATTACHMENT B

CONNECTICUT GREEN BANK

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.

57,000+ families

6,000+ businesses

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_2 : EQUALS

163 MILLION tree seedlings grown for 10 years

OR

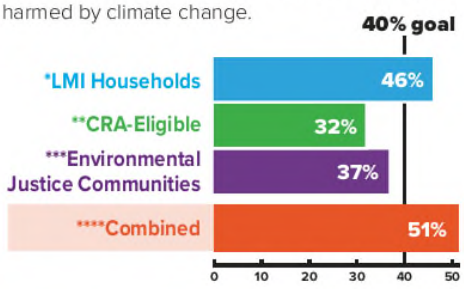
2.1 MILLION passenger vehicles driven for one year

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 Households – households 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.

Learn more by visiting ctgreenbank.com/strategy-impact/impact

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.

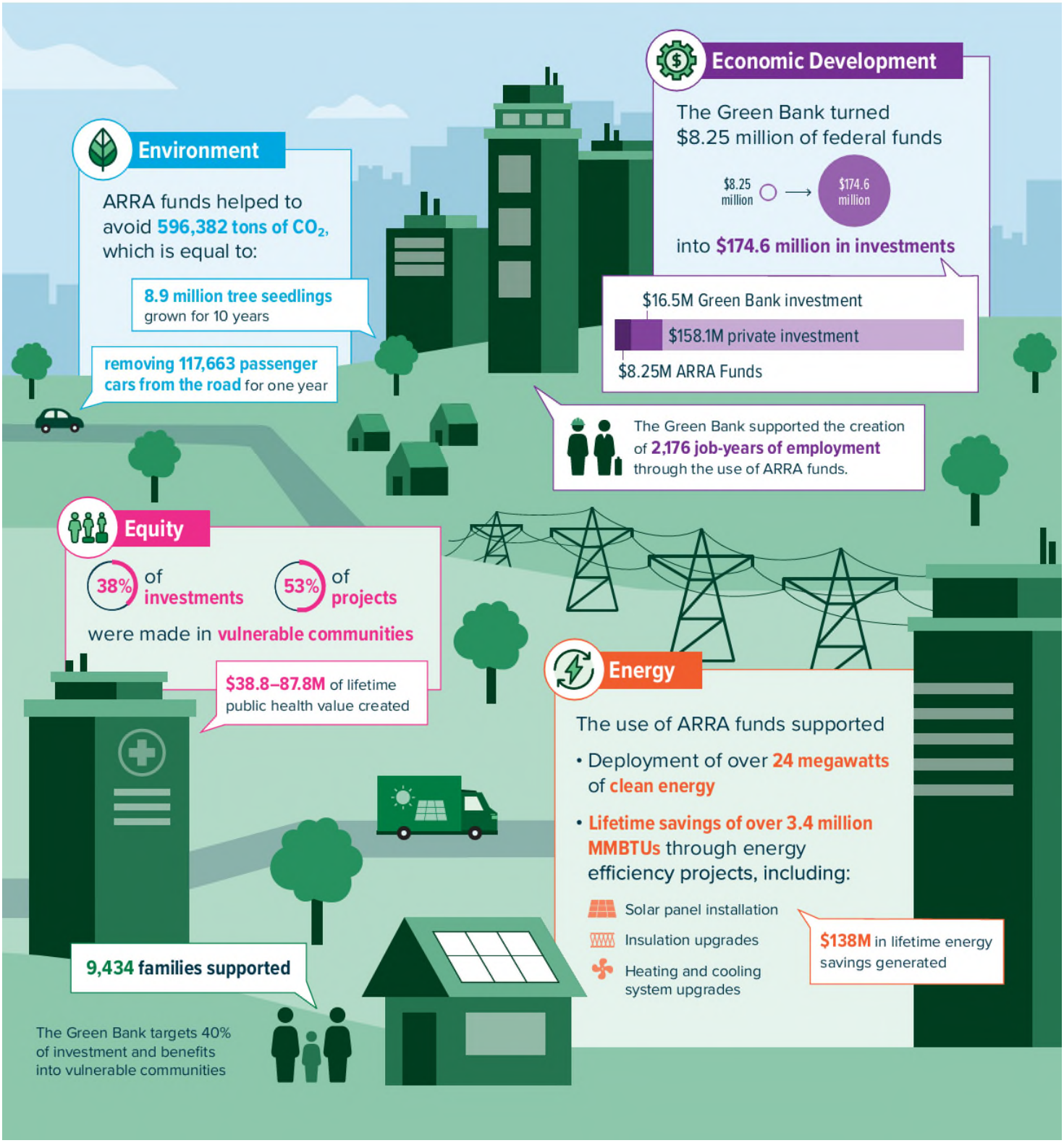
Sources: Connecticut Green Bank Annual Comprehensive Financial Reports.

ATTACHMENT C

The Impact of Federal Funds in Connecticut

Through our partnership with the Department of Energy & Environmental Protection, Connecticut Green Bank deployed $8.25 million of American Recovery and Reinvestment Act of 2009 (ARRA) funds to create more than $176.4 million of investments into residential clean energy projects. (All data as of 12-31-2021)

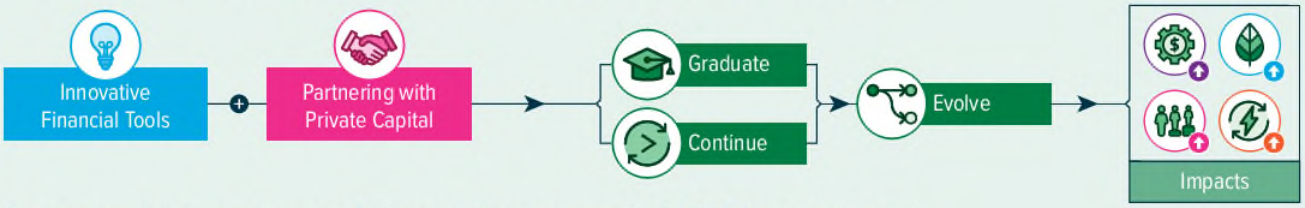
CONNECTICUT GREEN BANK



Financing Programs with Federal Funds

CONNECTICUT GREEN BANK

The Green Bank's ARRA funded programs combined innovative financial tools and partnering with private capital to create programs that **promote clean energy, economic growth, a healthier environment, and greater equity** in Connecticut.



Program models, proved successful through the deployment of ARRA funds, evolved to focus on additional markets and larger investment beyond the Green Bank.

CT SOLAR LEASE

Allowed homeowners to access the benefits of solar through a lease option.

- Leveraged $3.5M in ARRA funds as a **lease loss reserve** and $7.1M in Green Bank Subordinated Debt and Sponsor Equity.
- Raised $15.0M of **tax equity investment** and $16.9 million of senior debt through a **syndicate of local lenders**.

The success of this model led to the creation of **"Solar For All"**: a program based on the model that focused on providing residential solar to low-to-moderate income (LMI) families and communities of color — helping Connecticut achieve 41% deployment in LMI communities

CT SOLAR LOAN

Enabled homeowners of varying financial means to own their systems at affordable rates without a lien.

- Used $517,000 in ARRA funds for a **loan loss reserve (LLR)** to allow for the creation of the **first-ever crowd- sourced portfolio of solar loans**.
- Partnered with Sungage Financial and The Reinvestment Fund to generate $8.3M in lifetime savings.

ⓘ A **loan loss reserve** is a pool of money set aside to cover a prespecified amount of loan losses, providing partial risk coverage to lenders.

After this model proved successful, the program expanded to include new partners and a $100 million pool of capital, without any resources from the Green Bank.

SMART-E LOAN

Offers flexible financing for upgrades to home energy performance.

- ARRA funds used as **LLR and interest rate buydowns (IRB)** to offer homeowners low-interest financing to improve their home's energy performance.
- Provided in partnership with 13 local community banks and credit unions, 500+ contractors, and 5,923 families for $108.7 million in total investment.

Originally focused on clean energy, this program is **expanding to support environmental infrastructure.**

The program is transitioning from ARRA supported LLR to LLR on the Green Bank's balance sheet using IRBs from ARRA funds.

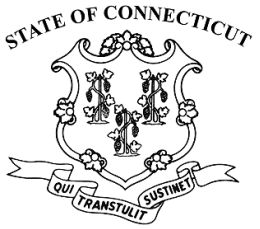
ⓘ An **interest rate buydown** is when capital is deployed to pay a portion of the interest on borrowers' loans to decrease their costs.

LOW INCOME MULTI-FAMILY ENERGY (LIME) LOAN

Unsecured low interest loans serving properties where at least 60% of units serve renters at 80% or lower of Area Median Income.

- ARRA funds used as LLR and **projected energy savings are used to cover the debt service of the loan.**
- Offered through a partnership with Capital For Change (C4C), a community development financial institution (CDFI) that provides financial **products and services that support an inclusive and sustainable economy**.

Using $300,000 in ARRA funds as LLR, LIME projects have a combined lifetime energy cost savings of over $117.6M.



Substitute House Bill No. 5200

Special Act No. 22-8

AN ACT ESTABLISHING A TASK FORCE TO STUDY HYDROGEN POWER.

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

Section 1. (*Effective from passage*) (a) There is established a task force to study hydrogen-fueled energy in the state's economy and energy infrastructure. Such study shall include, but need not be limited to: (1) A review of regulations and legislation needed to guide the development and achievement of economies of scale for the hydrogen ecosystem in the state, (2) an examination of how to position the state to take advantage of competitive incentives and programs created by the federal Infrastructure Investment and Jobs Act, (3) recommendations for workforce initiatives to prepare the state's workforce for hydrogen-fueled energy-related jobs, (4) an examination of the sources of potential clean hydrogen, including, but not limited to, wind, solar, biogas and nuclear, (5) recommendations for funding and tax preferences for building hydrogen-fueled energy facilities at brownfield sites through the Targeted Brownfield Development Loan Program, (6) recommendations regarding funding sources for developing hydrogen-fueled energy programs and infrastructure, and (7) recommendations for potential end uses of hydrogen-fueled energy.

(b) The task force shall consist of the following members:

(1) The president of the Connecticut Green Bank, who shall be the chairperson of the task force;

(2) Two representatives from the electricity division of an electric distribution company that has a service area of eighteen or more cities and towns, one of whom shall be appointed by the speaker of the House of Representatives and one of whom shall be appointed by the minority leader of the House of Representatives;

(3) Two representatives from the electricity division of an electric distribution company that has a service area of not more than seventeen cities and towns, one of whom shall be appointed by the president pro tempore of the Senate and one of whom shall be appointed by the minority leader of the Senate;

(4) A representative from the gas division of an electric distribution company that has a service area of eighteen or more cities and towns, who shall be appointed by the majority leader of the House of Representatives;

(5) A representative from the gas division of an electric distribution company that has a service area of not more than seventeen cities and towns, who shall be appointed by the minority leader of the Senate;

(6) A representative from an eligible nuclear power generating facility, as defined in section 16a-3m of the general statutes, who shall be appointed by the minority leader of the House of Representatives;

(7) A representative of the building trades, who shall be appointed by the majority leader of the Senate;

(8) Three representatives of Connecticut manufacturers of hydrogen-fueled energy technology, one of whom shall be appointed by the speaker of the House of Representatives, one of whom shall be appointed by the president pro tempore of the Senate and one of whom

shall be appointed by the minority leader of the House of Representatives;

(9) Three representatives of environmental organizations that advocate for renewable energy, one of whom shall be appointed by the president pro tempore of the Senate, one of whom shall be appointed by the majority leader of the House of Representatives and one of whom shall be appointed by the minority leader of the Senate;

(10) Two members of the Connecticut Hydrogen-Fuel Cell Coalition, one of whom shall be appointed by the majority leader of the House of Representatives and one of whom shall be appointed by the minority leader of the Senate;

(11) The chairperson of the Public Utilities Regulatory Authority, or the chairperson's designee;

(12) The Commissioner of Energy and Environmental Protection, or the commissioner's designee;

(13) The president of The University of Connecticut, or the president's designee; and

(14) The director of energy initiative at the Connecticut Center of Advanced Technology.

(c) All initial appointments to the task force shall be made not later than thirty days after the effective date of this section. Any vacancy shall be filled by the appointing authority, as applicable.

(d) The chairperson of the task force shall schedule the first meeting of the task force, which shall be held not later than sixty days after the effective date of this section.

(e) Not later than January 15, 2023, the task force shall submit a report on its findings and recommendations to the joint standing committee of

the General Assembly having cognizance of matters relating to energy, in accordance with the provisions of section 11-4a of the general statutes. The task force shall terminate on the date that it submits such report or January 15, 2023, whichever is later.

Approved May 23, 2022

75 Charter Oak Avenue, Suite 1 - 103, Hartford, CT 06106
T 860.563.0015
ctgreenbank.com

CONNECTICUT
GREEN BANK

Memo

To: Connecticut Green Bank Board of Directors

From: Bryan Garcia (President and CEO), Jane Murphy (Executive Vice President of Finance and Administration), and Eric Shrago (Vice President of Operations)

Date: June 18, 2022

Re: Proposed FY2023 Targets and Budget

The world continues to reopen and a new normal is being defined. After a year of planning and exploration, including at our recent off-site, the Green Bank is continuing to develop and define our expanded mission that includes environmental infrastructure, with new measures potentially coming for the Smart-E loan. This past year saw the launch of Energy Storage Solutions with the two utilities in the state as co-administrators and the approval of our first projects. Our Marketplace Assistance Program for the PPA and C-PACE programs continue to bring the organization projects and advance the deployment of clean energy in Connecticut. Between these programs, along with our continued efforts to reduce energy burden on vulnerable communities, we are looking at many exciting developments this upcoming fiscal year.

After careful consideration, stakeholder engagement, and reflection staff have constructed the below targets and supporting budget for the upcoming fiscal year.

I. Targets

The Green Bank has proposed the following targets for each sector's programs for the upcoming fiscal year:

Figure 1. Financing Program Targets for FY23

Segment	Product	Channel	Targets		
			Number of Projects	Total Capital Deployed	Capacity Installed
Financing Programs	CPACE	Total CPACE	23	$31,000,000	0.0
	PPA/RoofLeases	Total PPA	19	$13,710,000	7.6
	SBEA		839	$18,600,000	
	Multi-Family Pre-Dev		0	$0	0.0
	Multi-Family Term	Total Multi-Family Term	6	$1,380,000	0.6
	Multi-Family Health and Safety Total		1	$892,500	
	Transportation	Total Transportation	0	0	0
	Strategic Investments	Total Strategic Investments	0	$0	0.0
	Financing Programs Total		882	$ 64,202,500	7.6

Figure 2. Incentive Program Targets for FY23

Segment	Program		Targets		
			Number of Projects	Total Capital Deployed	Capacity Installed/ Nameplate Capacity
Incentive Programs	ESS (C&I)	*C&I Storage Incentives Total*	0	0	0
	ESS (Residential)	Total Battery Storage	500	$20,000,000	7.6
	Smart-E	Total Smart-E	960	$14,994,623	0.2
	Incentive Programs Total		1,460	$34,994,623	7.8

Figure 3. Financing and Incentive Program Targets for FY23[1]

Segment	Business Segment	Targets		
		Number of Projects	Total Capital Deployed	Capacity Installed
CGB	Financing Programs Total	882	$64,202,500	7.6
	Incentive Programs Total	1,460	$34,994,623	7.8
	Green Bank Total	2,342	$99,197,123	15.4

II. Proposed Green Bank FY 2023 Operating and Program Budget

Enclosed is the proposed Green Bank's FY 2023 budget for review and discussion at the June 24th meeting. The significant differences year-on-year we wish to highlight are as follows:

Revenues:

Overall, revenues are forecast to increase by $2,593,698 to $56,773,611 for a year on year increase of 5%. This estimate includes public revenues (utility customer assessments and RGGI auction proceeds) and earned revenues (interest income, REC sales, grants, and closing fees). The public revenues are $35,292,940, or 62% of total revenues – while the earned revenues are $21,480,671, or 38% of total revenues ($12,504,036 or 58% for the Incentive Programs and $8,553,225 or 42% for the Financing Programs).

[1] Note – until a Comprehensive Plan is developed by staff and reviewed and approved for "environmental infrastructure," there are no targets for Environmental Infrastructure Programs for FY23.

The changes year-on-year in the various revenue streams are below:

- **Utility Customer Assessments** – this is public revenues that comes from the 1 mil that ratepayers pay into the Connecticut Clean Energy Fund. The YOY decrease of 1% is due to the current economic conditions and the forecast continuation through next fiscal year. These funds decrease every year due to decreased demand of electricity as more clean energy is deployed in the state.
- **RGGI Auction Proceeds** – this is public revenue that the Green Bank receives 23% of the proceeds from the Regional Green House Gas Initiative Auctions for tradeable discharge permits each quarter. We are forecasting a 18% increase in this income next fiscal year due to increased demand for these permits that leads to higher clearing prices and a greater quantity of permits.
- **Interest Income** – this is earned revenue that comes from the repayment to the Green Bank from borrowers for our projects such as CPACE, project finance loans, etc. The overall decrease compared to last year's budget is driven by the refinancing and repayment of a significant portion of the Posigen facility in September 2021.
- **REC Sales** – this is earned revenue that the Green Bank produces approximately 49,000 Renewable Energy Certificates from pre-SHREC and yet to be tranched RSIP projects annually and is subject to the market price for the certificates. Staff actively follow the REC markets and enter into contracts to sell these RECs in order to optimize the income from them. Present market price has been increasing and the Green Bank has locked in buyers for these RECs at a weighted average of $30.18. This is a 58% increase YOY compared to the average price for FY22 of $19.14.
- **REC Sales (SHREC)** – this is earned revenue through the SHRECs (i.e., Solar Home Renewable Energy Certificates) owned by the Green Bank and designed to recoup the cost of the RSIP incentive and the administration and financing costs of the RSIP program. The Green Bank sets the price for these with the utilities who have agreed to purchase them under our Master Purchase Agreement. We have a YOY increase in SHREC income due to new systems coming online in the past fiscal year.

Expenses

Projected operating expenses for FY2023 are forecast at $25,154,737 – or $11,848,341 for personnel (i.e., 56% Financing Programs, 37% Incentive Programs, and 7% Environmental Infrastructure Programs) and $13,306,396 for non-personnel (i.e., 43% Financing Programs, 70% Incentive Programs, and 6% Environmental Infrastructure Programs) related operating expenses. Year on year, expenses are increasing by 2%. The noteworthy year on year budget differences are:

- **Compensation and Benefits** – increase of $1,993,857 representative of 4 new positions (an additional accountant to support the accounting team, an asset manager to ensure we are achieving optimal production from our systems, an environmental outreach professional, and an additional finance professional).
- **Program Administration** – is due to decrease by $745,719. The driver of this is having made significant progress on the wireless meters replacements to ensure SHREC revenue for the RSIP.

- **Marketing** – we are forecasting a decrease of $233,560 as we expended towards some bigger projects this past year (i.e. website redesign). We also have found efficiencies in the budget that allow us to make these reductions.

- **Evaluation, Measurement & Verification** – an increase of $325,000 which is due to the annual reporting and evaluation of energy storage solutions. This is cost recoverable.

- **Research and Development** – will decrease by $39,494.

- **Bond Issuance Costs** – As we do not intend to issue another SHREC backed municipal bond this year, we are not budgeting for any issuance costs at this time.

- **Grants and Incentives** – are projected to be $21,905,284 for our existing programs which includes $5,000,000 to be used to attract additional federal funds to projects in Connecticut; while non-operating expenses (e.g., interest expense, provision for loan losses) are projected to be $ 5,487,641 or an increase of 4%.

Investments
This budget includes $37,430,000 in projected investments that deliver $12.9M in interest income, or a weighted average return of 4.42% over 8 years.

Resolution:

WHEREAS, pursuant to Section 5.2.2 of the Connecticut Green Bank (Green Bank) Bylaws, the Budget, Operations and Compensation Committee (BOC) is charged with the review and approval of, and in its discretion recommendations to the Board of Directors (Board) regarding the annual budget and staffing plan for the organization;

WHEREAS, Connecticut Green Bank (Green Bank) staff have reviewed with the Budget, Operations, & Compensation (BOC) Committee the Fiscal Year 2023 Targets and Budget; and

WHEREAS, the Budget, Operations, and Compensation Committee discussed staff entering into new or extending existing professional services agreements (PSAs) with the following, contingent upon a competitive bid process having occurred in the last three years:

I. Adnet Technologies, LLC
II. Clean Power Research, LLC
III. Alter Domus (formerly Cortland)
IV. CSW LLC
V. Inclusive Prosperity Capital
VI. AlsoEnergy LLC
VII. DNV (includes what was formerly ERS)
VIII. Guidehouse (formerly Navigant)
IX. Novasource (f.k.a. SunSystem Technology - SST)

X. PKF O'Connor Davies
XI. C-TEC Solar, LLC
XII. Stark Raving

For fiscal year 2023 with the amounts of each PSA not to exceed the applicable approved budget line item

NOW, therefore be it:

RESOLVED, that Green Bank Board of Directors hereby approves: (1) the FY 2023 Targets and Budget, and (2) the PSAs with the strategic partners listed above; and.

Connecticut Green Bank
FY 2023 Operating and Program Budget
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Presented to the Board of Directors on June 24, 2022

Presented to BOC Committee on May 24, June 8 and June 15, 2022

Connecticut Green Bank
FY 2023 Operations and Program Budget - DRAFT
Statement of Revenues and Expenses - Financing Programs vs. Incentive Programs vs. Environmental Infrastructure Programs

	Total CT Green Bank			Financing Programs			Incentive Programs			Environmental Infrastructure		
	FY23 Budget	FY22 Budget	YOY Variance	FY23 Budget	FY22 Budget	YOY Variance	FY23 Budget	FY22 Budget	YOY Variance	FY23 Budget	FY22 Budget	YOY Variance
Revenue												
Operating Income	50,163,076	47,122,875	3,040,201	37,712,440	35,783,477	1,928,963	12,450,636	11,339,399	1,111,237	0	0	0
Interest Income	6,158,000	6,211,519	(53,519)	6,104,600	6,138,518	(33,918)	53,400	73,000	(19,600)	0	0	0
Interest Income, Capitalized	48,000	340,984	(292,984)	48,000	340,984	(292,984)	0	0	0	0	0	0
Other Income	404,535	504,535	(100,000)	404,535	504,535	(100,000)	0	0	0	0	0	0
Total Revenue	**$ 56,773,611**	**$ 54,179,913**	**2,593,698**	**$ 44,269,575**	**$ 42,767,514**	**1,502,061**	**$ 12,504,036**	**$ 11,412,399**	**1,091,637**	**$ 0**	**$ 0**	**0**
Operating Expenses												
Compensation and Benefits												
Employee Compensation	6,279,476	5,288,761	990,715	4,181,157	3,691,314	489,843	1,773,648	1,557,683	215,965	324,671	39,764	284,907
Employee Benefits	5,568,865	4,565,724	1,003,142	3,720,960	3,216,216	504,745	1,555,702	1,322,551	233,151	292,203	26,957	265,246
Total Compensation and Benefits	11,848,341	9,854,485	1,993,857	7,902,117	6,907,530	994,588	3,329,350	2,880,234	449,116	616,874	66,721	550,153
Program Development & Administration	4,623,266	5,368,985	(745,719)	731,266	852,985	(121,719)	3,492,000	4,516,000	(1,024,000)	400,000	0	400,000
Program Administration-IPC Fee	1,366,220	1,366,219	0	1,049,198	1,122,835	(73,638)	317,022	243,385	73,637	0	0	0
Lease Origination Services	4,000	0	4,000	4,000	0	4,000	0	0	0	0	0	0
Marketing Expense	1,750,165	1,983,725	(233,560)	1,222,099	1,322,609	(100,510)	528,066	661,116	(133,050)	0	0	0
E M & V	963,000	638,000	325,000	180,000	185,000	(5,000)	783,000	453,000	330,000	0	0	0
Research and Development	200,000	239,494	(39,494)	100,000	35,000	65,000	0	0	0	100,000	204,494	(104,494)
Consulting and Professional Fees	1,581,050	2,584,750	(1,003,700)	1,000,950	1,194,750	(193,800)	580,100	1,390,000	(809,900)	0	0	0
Rent and Location Related Expenses	1,038,430	1,072,261	(33,831)	858,731	735,857	122,874	151,895	320,428	(168,533)	27,804	15,974	11,830
Office, Computer & Other Expenses	1,780,265	1,516,972	263,293	1,227,301	1,168,896	58,405	513,204	339,681	173,523	39,760	8,396	31,364
Total Operating Expenses	**25,154,737**	**24,624,891**	**529,846**	**14,275,662**	**13,525,462**	**750,200**	**9,694,637**	**10,803,844**	**(1,109,207)**	**1,184,438**	**295,585**	**888,853**
Program Incentives and Grants												
Financial Incentives-CGB Grants	5,185,000	205,000	4,980,000	5,125,000	145,000	4,980,000	60,000	60,000	0	0	0	0
Program Expenditures-Federal Grants	40,000	40,000	0	40,000	40,000	0	0	0	0	0	0	0
EPBB/PBI/HOPBI Incentives	14,250,000	16,712,690	(2,462,690)	0	0	0	14,250,000	16,712,690	(2,462,690)	0	0	0
Battery Storage Incentives	2,430,284	1,147,500	1,282,784	0	0	0	2,430,284	1,147,500	1,282,784	0	0	0
Total Program Incentives and Grants	**$ 21,905,284**	**$ 18,105,190**	**3,800,094**	**$ 5,165,000**	**$ 185,000**	**4,980,000**	**$ 16,740,284**	**$ 17,920,190**	**(1,179,906)**	**$ 0**	**$ 0**	**0**
Operating Income/(Loss)	**$ 9,713,590**	**$ 11,449,832**	**(1,736,242)**	**$ 24,828,913**	**$ 29,057,052**	**(4,228,140)**	**$ (13,930,885)**	**$ (17,311,635)**	**3,380,751**	**$ (1,184,438)**	**$ (295,585)**	**(888,853)**
Non-Operating Expenses												
Interest Expense	2,554,641	2,708,079	(153,438)	169,732	186,205	(16,473)	2,384,909	2,521,873	(136,965)	0	0	0
Provision for Loan Loss	2,333,000	1,728,196	604,804	2,333,000	1,728,196	604,804	0	0	0	0	0	0
Interest Rate Buydowns-ARRA	600,000	850,000	(250,000)	0	0	0	600,000	850,000	(250,000)	0	0	0
Total Non-Operating Expenses	**$ 5,487,641**	**$ 5,286,275**	**201,366**	**$ 2,502,732**	**$ 1,914,401**	**588,331**	**$ 2,984,909**	**$ 3,371,873**	**(386,965)**	**$ 0**	**$ 0**	**0**
Net Revenues Over (Under) Expenses	**$ 4,225,950**	**$ 6,163,557**	**(1,937,608)**	**$ 22,326,181**	**$ 27,142,651**	**(4,816,470)**	**$ (16,915,793)**	**$ (20,683,508)**	**3,767,715**	**$ (1,184,438)**	**$ (295,585)**	**(888,853)**

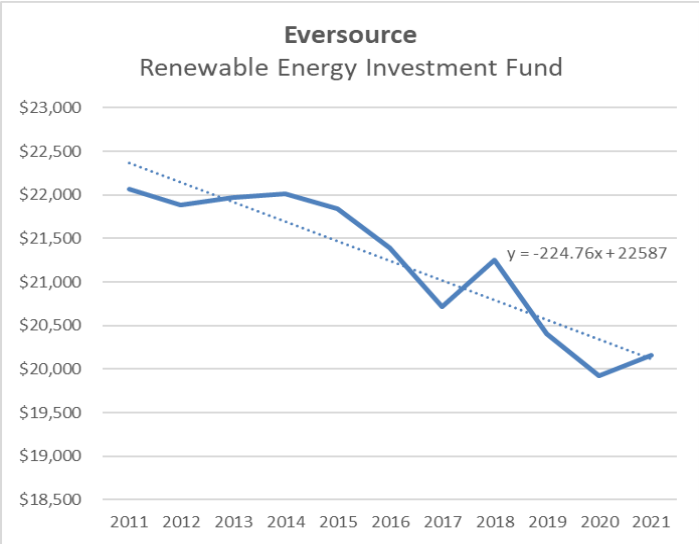
Connecticut Green Bank
FY 2023 Operating and Program Budget - DRAFT
Revenue Detail

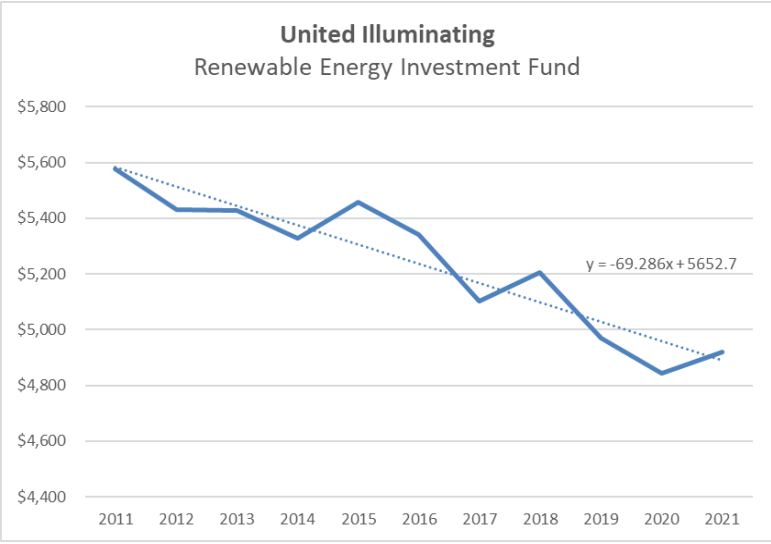
	FY23 Budget	FY22 Budget	$ Increase / (Decrease)	FY22 YTD As of 6/9/22
Revenues				
Utility customer assessments	$ 24,408,800	$ 24,677,677	$ (268,877)	$ 21,452,827
RGGI auction proceeds - renewables	11,251,969	9,197,049	2,054,920	11,568,905
RGGI auction proceeds - renewables - ESB Support	(367,829)	-	(367,829)	-
Total Public Revenue:	$ 35,292,940	$ 33,874,727	$ 1,418,213	$ 33,021,732
Interest Income - Cash Intercompany	69,475	69,475	(0)	57,856
Interest Income - Cash deposits	50,400	86,200	(35,800)	30,862
Interest Income - Delinquent CPACE payments	-	-	-	12,814
Interest Income - Capitalized construction interest	48,000	340,984	(292,984)	318,499
Interest Income - Residential PV Solar Loans (Solar Loan 1)	54,000	-	54,000	61,884
Interest Income - CPACE Warehouse, benefit assessments	2,937,675	2,751,461	186,214	2,248,815
Interest Income - Loan portfolio, other programs	2,942,841	3,176,912	(234,070)	2,960,013
Interest Income - CPACE Selldown Bonds	50,209	54,471	(4,262)	59,010
Interest Income - Solar lease I promissory notes, net	53,400	73,000	(19,600)	63,253
CPACE closing fees	123,000	123,000	-	97,345
Grant income (federal programs)	40,000	40,000	-	20,789
REC sales	1,466,500	755,750	710,750	765,750
REC sales to utilities under SHREC program	12,450,636	11,339,399	1,111,237	10,533,954
PPA Income	465,000	640,000	(175,000)	492,518
LREC/ZREC Income	325,000	350,000	(25,000)	447,008
Other income - Programs	81,000	81,000	-	72,469
Other income - General [(1)]	323,535	423,535	(100,000)	96,825
Total Earned Revenue:	$ 21,480,671	$ 20,305,186	$ 1,175,485	$ 18,339,664
Total Sources of Revenue:	$ 56,773,611	$ 54,179,913	$ 2,593,698	$ 51,361,396

(1) Of the $423,535 in Other Income - General, $225,535 is from EV Carbon Offsets.

Connecticut Green Bank
FY 2023 General Operations Budget - DRAFT
Utility Customer Assessment Projections

	FY23 Budget	FY22 Budget	FY22 Projected (1)	YOY Budget Incr / (Decr)	FY23 Budget vs. FY22 Projected	FY22 Budget vs. FY22 Projected
July	$ 2,363,700	$ 2,384,300	$ 2,384,300	$ (20,600)	$ (20,600)	$ -
August	2,461,100	2,420,744	2,420,744	40,356	40,356	-
September	2,215,900	2,443,870	2,443,870	(227,970)	(227,970)	-
October	1,822,200	1,864,099	1,864,099	(41,899)	(41,899)	-
November	1,782,600	1,801,964	1,801,964	(19,364)	(19,364)	-
December	2,055,600	2,069,200	2,086,893	(13,600)	(31,293)	17,693
January	2,224,200	2,237,900	2,256,480	(13,700)	(32,280)	18,580
February	2,122,400	2,110,000	2,160,338	12,400	(37,938)	50,338
March	1,969,700	1,973,700	2,087,855	(4,000)	(118,155)	114,155
April	1,841,100	1,840,200	1,895,934	900	(54,834)	55,734
May	1,674,300	1,691,400	1,713,200	(17,100)	(38,900)	21,800
June	1,876,000	1,840,300	1,934,600	35,700	(58,600)	94,300
Total assessments:	$ 24,408,800	$ 24,677,677	$ 25,050,278	$ (268,877)	$ (641,478)	$ 372,601
				(1.1%)	(2.6%)	1.5%

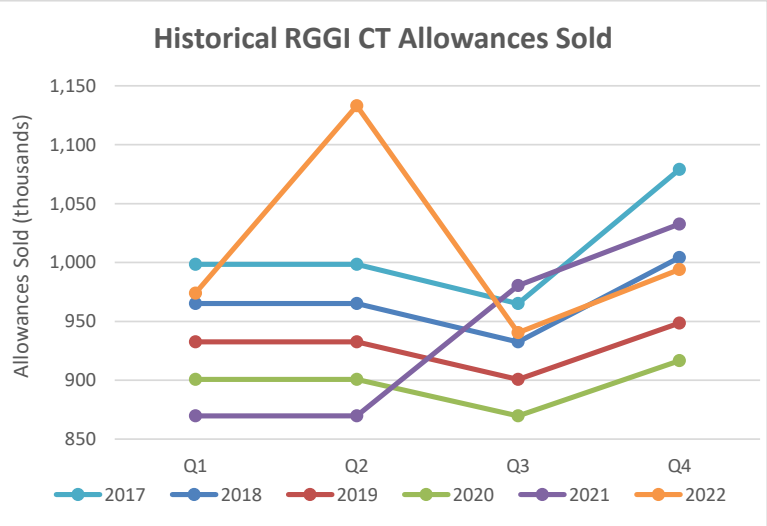




(1) Actual data through Apr 2022 and estimated data beyond.

Connecticut Green Bank
FY 2023 General Operations Budget - DRAFT
RGGI Auction Receipts

	FY23 Action #	Price	Allowances	FY23 Budget	FY22 Budget	FY22 Projected	YOY Budget Incr / (Decr)	FY22 Budget vs. Projected
September Auction	57	$ 12.87	965,000	$ 2,856,497	$ 2,083,290	$ 2,083,290	$ 773,207	$ -
December Auction	58	$ 12.74	965,000	$ 2,827,643	3,387,760	3,387,760	(560,117)	-
March Auction	59	$ 12.61	935,000	$ 2,711,781	1,863,000	2,919,855	848,781	1,056,855
June Auction	60	$ 12.48	995,000	$ 2,856,048	1,863,000	2,972,230	993,048	1,109,230
September Sweep				-	-	-	-	-
December Sweep				-	-	-	-	-
March Sweep				-	-	-	-	-
June ESB Support [(1)]				(367,829)	-	-	(367,829)	-
		Total auction receipts:		$ 10,884,140	$ 9,197,049	$ 11,363,135	$ 1,687,091	$ 2,166,085
Auction Proceeds				$ 11,251,969	$ 9,197,049	$ 11,363,135	$ 2,054,920	$ 2,166,085
Sweep				(367,829)	-	-	(367,829)	-
		Total auction receipts:		$ 10,884,140	$ 9,197,049	$ 11,363,135	$ 1,687,091	$ 2,166,085



[(1)] To support electric school buses in vulnerable communities (i.e., environmental justice communities), proceeds in excess of $5.2 million to be directed to DEEP to support vouchers under CHEAPR beginning calendar year 2023.

Connecticut Green Bank
FY 2023 RSIP Budget - DRAFT
REC Revenue

Tranche	Description	FY23 Budget - DRAFT: Fiscal Q1 2023	Fiscal Q2 2023	Fiscal Q3 2023	Fiscal Q4 2023	Total Fiscal 2023 Budget	Total Fiscal 2022 Budget	YOY Budget Incr / (Decr)	FY22 Actual	FY22 Budget vs. Actual
	Generation Month	**Calendar Q1 2022**	**Calendar Q2 2022**	**Calendar Q3 2022**	**Calendar Q4 2022**	**Total Calendar Year 2022**	**Total Calendar Year 2021**	**YOY Budget Incr / (Decr)**	**Total Calendar Year 2021**	**Calendar 2021 Budget vs. Actual**
SHREC T1	P90 Generation (mWh)	8,569	14,806	14,302	6,512	44,189	45,183	(994)	39,375	(5,808)
SHREC T1	Revenue @ $50 / mWh	$ 428,450	$ 740,300	$ 715,100	$ 325,600	$ 2,209,450	$ 2,259,169	$ (49,719)	$ 1,968,750	$ (290,419)
SHREC T2	P90 Generation (mWh)	10,969	18,672	18,065	8,347	56,053	57,665	(1,612)	48,792	(8,873)
SHREC T2	Revenue @ $49 / mWh	$ 537,481	$ 914,928	$ 885,185	$ 409,003	$ 2,746,597	$ 2,825,569	$ (78,972)	$ 2,390,808	$ (434,761)
SHREC T3	P90 Generation (mWh)	6,884	12,075	11,684	5,211	35,854	36,136	(282)	35,640	(496)
SHREC T3	Revenue @ $48 / mWh	$ 330,432	$ 579,600	$ 560,832	$ 250,128	$ 1,720,992	$ 1,734,528	$ (13,536)	$ 1,710,720	$ (23,808)
SHREC T4	P90 Generation (mWh)	10,641	18,850	18,203	8,078	55,772	56,205	(433)	52,843	(3,362)
SHREC T4	Revenue @ $47 / mWh	$ 500,127	$ 885,950	$ 855,541	$ 379,666	$ 2,621,284	$ 2,641,635	$ (20,351)	$ 2,483,621	$ (158,014)
SHREC T5	P90 Generation (mWh)	11,493	20,226	19,594	8,734	60,047	53,671	6,376	56,573	2,902
SHREC T5	Revenue @ $35 / mWh	$ 402,255	$ 707,910	$ 685,790	$ 305,690	$ 2,101,645	$ 1,878,497	$ 223,148	$ 1,980,055	$ 101,558
SHREC T6	P90 Generation (mWh)	5,951	10,388	10,064	4,499	30,902	-	30,902	-	-
SHREC T6	Revenue @ $34 / mWh	$ 202,334	$ 353,192	$ 342,176	$ 152,966	$ 1,050,668	$ -	$ 1,050,668	$ -	$ -
	Total SHREC Revenue	$ 2,401,079	$ 4,181,880	$ 4,044,624	$ 1,823,053	$12,450,636	$11,339,399	$ 1,111,237	$10,533,954	$ (805,445)
	Generation Month	**Calendar Q1 2022**	**Calendar Q2 2022**	**Calendar Q3 2022**	**Calendar Q4 2022**	**Total Calendar Year 2022**	**Total Calendar Year 2021**	**YOY Budget Incr / (Decr)**	**Total Calendar Year 2021**	**Calendar 2021 Budget vs. Actual**
Non-SHREC	Actual Generation (mWh)	-	-	-	49,000	49,000	40,000	9,000	40,000	-
Non-SHREC	Revenue @ $30.1786* / mWh	$ -	$ -	$ -	$ 1,478,750	$ 1,478,750	$ 765,750	$ 713,000	$ 765,750	$ -
	Commission Expense	-	-	-	(12,250)	(12,250)	(10,000)	(2,250)	(10,000)	-
	Total Non-SHREC Revenue	$ -	$ -	$ -	$ 1,466,500	$ 1,466,500	$ 755,750	$ 710,750	$ 755,750	$ -
	Total REC Revenue	$ 2,401,079	$ 4,181,880	$ 4,044,624	$ 3,289,553	$13,917,136	$12,095,149	$ 1,821,987	$11,289,704	$ (805,445)

Notes:

* The Green Bank manages its price risk by selling its Non-SHREC RECs in advance to buyers. To date we have sold 49,000 @ at a weighted average price of $30.1786.

Connecticut Green Bank
FY 2023 Operations and Program Budget - DRAFT
Staffing Plan

	Position / Department	Durational Ending	Name	Staffing Budget Hours FY23	Staffing Budget Hours FY22	Staffing Budget Hours YOY Variance	Staffing Budget FTEs FY23	Staffing Budget FTEs FY22	Staffing Budget FTEs YOY Variance	Staffing Budget $s FY23	Staffing Budget $s FY22	Staffing Budget $s YOY Variance
Employees Employed Year Over Year												
	Senior Associate, Incentive Programs		Attruia, Stephanie	2,080	2,080		1.00	1.00				
	Senior Manager, Community Partnerships		Basham, Emily	2,080	2,080		1.00	1.00				
	Manager, Clean Energy Finance		Beech, David	2,080	2,080		1.00	1.00				
	Director, Incentive Programs		Carrillo, Sergio	2,080	2,080		1.00	1.00				
	Controller		Cartelli, Shawne	2,080	2,080		1.00	1.00				
	Senior Manager, Resource Management & Impact		Charpentier, Lucy	2,080	2,080		1.00	1.00				
	Senior Manager, Incentive Programs		Colonis, William	2,080	2,080		1.00	1.00				
	Associate Director, Financing Programs		Duncan, Catherine	2,080	2,080		1.00	1.00				
	Vice President, Financing Programs		Dykes, Mackey	2,080	2,080		1.00	1.00				
	VP, General Counsel & Chief Legal Officer		Farnen, Brian	2,080	2,080		1.00	1.00				
	President & Chief Executive Officer		Garcia, Bryan	2,080	2,080		1.00	1.00				
	EVP and Chief Investment Officer		Hunter, Bert	2,080	2,080		1.00	1.00				
	Marketing Manager		Janecko, Andrea	2,080	2,080		1.00	1.00				
	Office Manager		Johnson, Barbara	2,080	2,080		1.00	1.00				
	Associate, Asset Management and Compliance		Johnson, Karl	2,080	2,080		1.00	1.00				
	Associate Director, Financing Programs & Sr. Counsel		Kovtunenko, Alex	2,080	2,080		1.00	1.00				
	Associate Director, Financing Programs		Lembo-Buzzelli, Alysse	2,080	2,080		1.00	1.00				
	Associate, Incentive Programs		Lewis, Lynne	2,080	2,080		1.00	1.00				
	Senior Manager, Market Engagement		Ludwig, Peter N.	2,080	2,080		1.00	1.00				
	Executive Assistant		Lumpkin, Cheryl	2,080	2,080		1.00	1.00				
	Legislative Liaison and Associate Director		Macunas, Matt	2,080	2,080		1.00	1.00				
	Senior Associate, Incentive Programs (Durational)	Jun 2023	McCarthy, Neil	2,080	2,080		1.00	1.00				
	Senior Manager, Clean Energy Finance		Miller, Desiree	2,080	2,080		1.00	1.00				
	EVP, Finance and Administration		Murphy, Jane	2,080	2,080		1.00	1.00				
	Senior Manager, Incentive Programs		Pyne, Sara	2,080	2,080		1.00	1.00				
	Senior Manager, Marketing and Outreach		Schmitt, Robert	2,080	2,080		1.00	1.00				
	Staff Accountant		Schneider, Ariel	2,080	2,080		1.00	1.00				
	Vice President, Operations		Shrago, Eric	2,080	2,080		1.00	1.00				
	Associate Director, Finance and Administration		Smith, Dan	2,080	2,080		1.00	1.00				
	Senior Accountant		Soares, Natalia	2,080	2,080		1.00	1.00				
	Senior Manager, Clean Energy Finance		Stewart, Fiona	2,080	2,080		1.00	1.00				
	Associate Director, Marketing & Strategic Communications		Sturk, Rudy	2,080	2,080		1.00	1.00				
	Senior Associate, Financing Programs		Tsitso, Christina	2,080	2,080		1.00	1.00				
	Associate, Incentive Programs		Vigil, Marycruz	2,080	2,080		1.00	1.00				
	Associate Director, Special Projects		Waters, Barbara	2,080	2,080		1.00	1.00				
			Subtotal	72,800	72,800	-	35.00	35.00	-	$ 4,415,056	$ 3,951,366	$ 463,691
Employees Hired for Open Positions												
	Associate, Incentive Programs		DeTeso, William	2,080	2,080		1.00	1.00				
	Associate, Incentive Programs		Maiolo, Stephanie	2,080	2,080		1.00	1.00				
	Associate Director of Innovation		Harari, Sara	2,080	1,520		1.00	0.73				
	Corporate Paralegal (prior year includes Loyola French)		Backman, Blaire	2,080	2,640		1.00	1.27				
	Manager, Incentive Programs Battery Storage		Kranich, Ed	2,080	960		1.00	0.46				
	Associate, Incentive Programs Battery Storage		Saavedra, Emma	2,080	960		1.00	0.46				
(1)	Senior Manager, Operations		Buonannata, Giuseppe	2,080	2,080		1.00	1.00				
			Subtotal	14,560	12,320	2,240	7.00	5.92	1.08	$ 654,875	$ 534,216	$ 120,659

Connecticut Green Bank
FY 2023 Operations and Program Budget - DRAFT
Staffing Plan

	Position / Department	Durational Ending	Name	Staffing Budget Hours FY23	Staffing Budget Hours FY22	Staffing Budget Hours YOY Variance	Staffing Budget FTEs FY23	Staffing Budget FTEs FY22	Staffing Budget FTEs YOY Variance	Staffing Budget $s FY23	Staffing Budget $s FY22	Staffing Budget $s YOY Variance
	Open Positions - Vacancies											
(2)	FY22 - Open-Director, Environmental Infrastructure			2,080	160		1.00	0.08				
(3)	FY22 - Open-Financing Programs (prior year includes Nicholas Zuba)			2,080	2,320		1.00	1.12				
(4)	FY23 - Open-Sr. Accountant			1,040	-		0.50	-				
(4)	FY23 - Open-Asset Manager			2,080	-		1.00	-				
(5)	FY23 - Open-Environmental Outreach			2,080	-		1.00	-				
(6)	FY23 - Open-Marketing Battery Storage			2,080	480		1.00	0.23				
			Subtotal	11,440	2,960	8,480	5.50	1.42	4.08	$ 710,000	$ 181,241	$ 528,759
	Open Positions - Departing Employees											
	Accounting Specialist		Turker, Irene	-	2,080		-	1.00				
(7)	Open - Senior Accountant			2,080	-		1.00	-				
	Director, Clean Energy Finance		Yu, Mike	-	2,080		-	1.00				
(8)	Open - Finance - Underwriting Lead			2,080	-		1.00	-				
(8)	Open - Finance - Structure Lead			2,080	-		1.00	-				
			Subtotal	6,240	4,160	2,080	3.00	2.00	1.00	$ 310,000	$ 230,264	$ 79,736
	Staff Redeployments and Departing Employees											
	Manager, Incentive Programs		Kranich, Ed	-	1,120		-	0.54				
	Associate, Incentive Programs		Saavedra, Emma	-	1,120		-	0.54				
	Senior Associate, Incentive Programs (Durational)	FY22	DeMaio, Alicia	-	2,080		-	1.00				
	Associate Director, Clean Energy Finance		Della Pesca, Rosalind	-	640		-	0.31				
			Subtotal	-	4,960	(4,960)	-	2.38	(2.38)	$ -	$ 199,862	$ (199,862)
			Total Employees	105,040	97,200	7,840	50.50	46.73	3.77	6,089,931	5,096,949	$ 992,982
	Interns											
	Intern - Finance 1			560	480		0.27	0.23				
	Intern - CI&I 1			-	480		-	0.23				
	Intern - RSIP 1			560	720		0.27	0.35				
	Intern - RSIP 2			560	720		0.27	0.35				
	Intern - Battery Storage 1			560	720		0.27	0.35				
	Intern - Battery Storage 2			560	720		0.27	0.35				
	Intern - Legal 1			560	480		0.27	0.23				
	Intern - Climate Corps 1			560	320		0.27	0.15				
	Intern - Climate Corps 2			-	320		-	0.15				
			Total Interns	3,920	4,960	(1,040)	1.88	2.38	(0.50)	$ 100,380	$ 110,000	$ (9,620)
			Total Employees and Interns	108,960	102,160	6,800	52.38	49.12	3.27			

	Compensation Dollars FY23	Compensation Dollars FY22	Compensation Dollars YOY Variance
Employees	$ 5,672,567	$ 4,912,401	$ 760,166
Merit Pool - 4.0%	190,536	184,548	5,988
COLA - 5.0%	226,828	-	226,828
Promotion Pool - 1.5%	89,166	81,812	7,354
Subtotal Compensation Employees:	$ 6,179,097	$ 5,178,761	$ 1,000,336
Intern Pool	100,380	110,000	(9,620)
Total Compensation Employees and Interns:	$ 6,279,477	$ 5,288,761	$ 990,716

(1) Position vacant due to departure of Craig Connolly in FY20. Repurposed position to support Managing Director of Operations for additional responsibilities.
(2) HB 6441 passed in 2021 legislative session.
(3) Position vacant due to departure of Nicholas Zuba in FY22.
(4) Add to staff to support increased workload.
(5) HB 6441 passed in 2021 legislative session.
(6) SB 952 passed in 2021 legislative session. Subject to PURA decision in Docket 17-12-03RE03.
(7) Open due to departure of Irene Turker 7/1/22
(8) Open due to departure of Mike Yu 6/1/22

Connecticut Green Bank
FY 2023 Operations and Program Budget - DRAFT
Compensation - Job Grades

		Salary Ranges				
Job Grade	**Job Titles**	**Min**	**25th Percentile**	**Mid**	**75th Percentile**	**Max**
21	President	201,417	231,630	261,842	292,055	322,267
20	EVP, Officers	167,847	193,025	218,202	243,379	268,556
19	Managing Director, Vice President	139,873	160,854	181,835	202,816	223,797
18	Director	116,561	134,045	151,529	169,013	186,497
17	Associate Director, Sr. Manager-Clean Energy Finance, Controller	111,236	127,921	144,607	161,292	177,978
16	Sr. Manager-Programs/Corporate, Sr. Administrator	92,697	106,601	120,506	134,410	148,315
15	Manager, Administrator	77,247	88,834	100,421	112,008	123,596
14	Senior Associate, Associate Manager, Senior Accountant	67,171	77,247	87,323	97,399	107,474
13	Associate, Executive Assistant, Office Manager	58,410	67,171	75,933	84,694	93,456
12	Senior Assistant, Staff Accountant	50,791	58,410	66,029	73,647	81,266
11	Assistant	44,166	50,791	57,416	64,041	70,666

Connecticut Green Bank
FY 2023 Program Budget - DRAFT
Program Loans

Program Type - CGB portfolio loan (Asset) advances

Program Name	Description		Interest Rate	Term in Years	Q1	Q2	Q3	Q4	FY23 Total	FY22 Budget	FY22 YTD Actuals
Multifamily Programs	C4C Lime facility draws		4.0%	15	$ -	$ 100,000	$ -	$ 100,000	$ 200,000	$ 200,000	$ 200,000
Multifamily Programs	PPA Multifamily		4.25%	20	345,000	345,000	345,000	345,000	1,380,000	270,000	-
		Total MultiFamily Program Loans:			***$ 345,000***	***$ 445,000***	***$ 345,000***	***$ 445,000***	***$ 1,580,000***	***$ 470,000***	***$ 200,000***
LMI Programs	Posigen - Junior facility		7.5%	6	$ 525,000	$ 525,000	$ 525,000	$ 525,000	$ 2,100,000	$ -	$ 6,999,432
LMI Programs	Posigen - Working Capital ($2m)		2.0%	10	650,000	450,000	450,000	450,000	2,000,000	-	
LMI Programs	Posigen - Term Loan ($6m)		4.0%	10	-	-	250,000	250,000	500,000	-	
		Total Resi 1-4 Program Loans:			***$ 1,175,000***	***$ 975,000***	***$ 1,225,000***	***$ 1,225,000***	***$ 4,600,000***	***$ -***	***$ 6,999,432***
CPACE	CGB Portfolio	Current/Future Pipeline	5.60%	17.5	$ 1,500,000	$ 1,500,000	$ 2,000,000	$ 2,000,000	$ 7,000,000	$ 5,000,000	$ 3,128,622
Solar PPA Development	PPA State		3.0%	20	2,082,500	2,082,500	2,082,500	2,082,500	8,330,000	9,000,000	1,573,954
Solar PPA Development	PPA Municipality		3.75%	20	-	-	-	-	-	2,347,200	741,496
Solar PPA Development	Commercial Projects		3.75%	20	-	-	-	-	-	-	96,621
Solar PPA Development	PPA Developers		4.50%	20	325,000	325,000	325,000	325,000	1,300,000	1,257,000	659,295
Solar PPA Development	PPA Debt to 3rd parties		4.50%	15	675,000	675,000	675,000	675,000	2,700,000	4,100,000	1,794,111
SBEA	Regular Loan Purchases		3.50%	4	930,000	930,000	930,000	930,000	3,720,000	1,447,000	819,022
		Total CI&I Program Loans:			***$ 5,512,500***	***$ 5,512,500***	***$ 6,012,500***	***$ 6,012,500***	***$ 23,050,000***	***$ 23,151,200***	***$ 8,813,121***
CE Finance Prg	PPA Sub Debt into IPC Fund	Debt financing	5.5%	15	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CE Finance Prg	Strategic Investments	FuelCell Groton	8.0%	10	3,200,000	-	-	-	3,200,000	3,200,000	-
CE Finance Prg	Strategic Investments	Unspecified	4.0%	10	-	-	2,500,000	2,500,000	5,000,000	5,000,000	5,000,000
		Total CE Finance Program Loans:			***$ 3,200,000***	***$ -***	***$ 2,500,000***	***$ 2,500,000***	***$ 8,200,000***	***$ 8,200,000***	***$ 5,615,330***
		Total of all Program Loans:			***$ 10,232,500***	***$ 6,932,500***	***$ 10,082,500***	***$ 10,182,500***	***$ 37,430,000***	***$ 31,821,200***	***$ 21,627,883***

	Prob.	Ratio	Q1	Q2	Q3	Q4	FY23 Total	FY22 Budget	FY22 YTD Actuals
Total MultiFamily Program Loans	85%	10%	$ -	$ 8,500	$ -	$ 8,500	$ 17,000	$ 39,950	$ 27,625
Total Resi 1-4 Program Loans	85%	10%	$ 99,875	$ 82,875	$ 104,125	$ 104,125	$ 391,000	$ -	-
Total CI&I Program Loans-CPACE	85%	10%	127,500	127,500	170,000	170,000	595,000	425,000	389,583
Total CI&I Program Loans-Solar PPA Development	0%	0%	-	-	-	-	-	192,906	175,722
Total CI&I Program Loans-PPA Developers/Debt to 3rd Parties	85%	10%	85,000	85,000	85,000	85,000	340,000	455,340	417,395
Total CE Finance Program Loans	85%	14%	386,342	-	301,829	301,829	990,000	615,000	427,500
Total Provision for Loan Losses:			***$ 698,717***	***$ 303,875***	***$ 660,954***	***$ 669,454***	***$ 2,333,000***	***$ 1,728,196***	***$ 1,437,825***

Prg Name	Description	Interest Rate	Term	Q1	Q2	Q3	Q4	FY23 Total	FY22 Budget	FY22 YTD Actuals
Multifamily	HDF/MacArthur Interest Expense - $5.0m draw	1.0%	15	$ 12,500	$ 12,500	$ 12,500	12,500	$ 50,000	$ 50,000	$ 50,000
RSIP	Interest Expense-SHREC ABS-Class A/Class B	5.09%/7.0%	15	411,728	410,572	393,421	379,234	1,594,955	1,607,261	1,587,835
RSIP	Interest Expense-Green Liberty Bond 2020	0.95%-2.90%	15	85,064	83,514	81,967	81,964	332,510	344,335	471,931
RSIP	Interest Expense-Green Liberty Bond 2021	0.23%-2.95%	15	115,276	114,544	113,812	113,812	457,444	461,536	634,450
CE Finance Prg	Amalgamated LOC - CTSL1/CTSLN1	4.1%	1	-	-	-	-	-	2,400	1,048
CREBs	New England Hydro CREBs net of Treasury Subsidy	4.09%	20	3,025	2,779	2,477	2,504	10,785	12,630	10,749
CREBs	CSCU CREBs net of Treasury Subsidy	4.9%	20	29,386	27,838	25,718	26,004	108,947	121,175	108,658
				$ 656,981	$ 651,747	$ 629,895	$ 616,019	$ 2,554,641	$ 2,599,337	$ 2,864,671

Connecticut Green Bank
FY 2023 Program Budget - DRAFT
Credit Enhancements

Credit Enhancements - Additions to Loan Loss Reserves - ARRA Funds

Dept	Prg Code	Prg Name	Description	FY23 Budget Q1	Q2	Q3	Q4	Total	FY22 Budget
				$ -	$ -	$ -	$ -	$ -	$ -
				-	-	-	-	-	-
				$ -	$ -	$ -	$ -	$ -	$ -

Credit Enhancements - Additions to Loan Loss Reserves - DEEP Funds

Dept	Prg Code	Prg Name	Description	FY23 Budget Q1	Q2	Q3	Q4	Total	FY22 Budget
				$ -	$ -	$ -	$ -	$ -	$ -
				$ -	$ -	$ -	$ -	$ -	$ -

Credit Enhancements - Additions to Loan Loss Reserves - CGB Funds

Dept	Prg Code	Prg Name	Description	FY23 Budget Q1	Q2	Q3	Q4	Total	FY22 Budget
Resi	52210	SmartE	CGB/Smart E loans	$ 60,000	$ 60,000	$ 40,000	$ 30,000	$ 190,000	$ 227,794
				-	-	-	-	-	-
				$ 60,000	$ 60,000	$ 40,000	$ 30,000	$ 190,000	$ 227,794

Credit Enhancements - Interest rate Buydowns - ARRA Funds

Dept	Prg Code	Prg Name	Description	FY23 Budget Q1	Q2	Q3	Q4	Total	FY22 Budget
Resi	52211	SmartE ARRA IRB	CGB/Smart E loans	$ 300,000	$ 300,000	$ -	$ -	$ 600,000	$ 850,000
				-	-	-	-	-	-
				$ 300,000	$ 300,000	$ -	$ -	$ 600,000	$ 850,000

Credit Enhancements - Interest rate Buydowns - CGB Funds

Dept	Prg Code	Prg Name	Description	FY23 Budget Q1	Q2	Q3	Q4	Total	FY22 Budget
				-	-	-	-	-	-
				$ -	$ -	$ -	$ -	$ -	$ -

Connecticut Green Bank
FY 2023 Program Budget - DRAFT
Financial Incentives - Grants and Rebates

Program Name	Description	FY23 Budget Q1	Q2	Q3	Q4	FY23 Budget	FY22 Budget	FY22 YTD Actuals 6/9/22
RSIP	PBI Incentives	$ 4,212,000	$ 2,691,000	$ 1,287,000	$ 3,510,000	$ 11,700,000	$ 11,012,690	$ 8,514,614
RSIP	EPBB Incentives	1,250,000	650,000	650,000	-	2,550,000	5,700,000	5,027,211
Battery Storage (PURA)	Battery Storage Incentives - Residential	331,402	441,870	773,272	883,740	2,430,284	675,000	-
Battery Storage (PURA)	Battery Storage Incentives - Commercial	-	-	-	-	-	472,500	-
Federal Programs	Other Federal Grants	10,000	10,000	10,000	10,000	40,000	40,000	13,750
GenOps	Sustainable CT Grant	50,000	50,000	-	25,000	125,000	125,000	125,000
GenOps	CGB Matching Grants for Federal BIL Grants	-	-	2,100,000	2,900,000	5,000,000	-	-
GenOps	IPC Health & Safety Grant	-	-	-	-	-	20,000	20,000
Battery Storage (PURA)	Battery Storage Grants (CEG, Operation Fuel)	15,000	15,000	15,000	15,000	60,000	60,000	-
		$ 5,868,402	$ 3,857,870	$ 4,835,272	$ 7,343,740	$ 21,905,284	$ 18,105,190	$ 13,700,575

Connecticut Green Bank
FY 2023 General Operations Budget - DRAFT
Research and Development Expenditures

Project	Purpose	FY23 Budget	FY22 Budget	FY22 Actuals as of 6/9/22
Renewable Thermal Technology	RH&C	$ -	$ 25,000	$ -
Environmental Infrastructure	Planning for expanded Mission	100,000	50,000	-
LMI	Energy Burden in Transportation Study	-	-	1,036
EMV	Joint Jobs Study with EEB	-	10,000	-
Other Renewable Energy Projects	To Be Determined	100,000	-	-
		$ 200,000	$ 85,000	$ 1,036

Connecticut Green Bank
FY 2023 General Operations Budget - DRAFT
Capital Expenditure Budget

	FY23 Budget	FY22 Budget	FY22 Actuals as of 6/9/22
IT Hardware & Software			
New/Replacement Desktops & Laptops	$ 40,000	$ 30,000	$ 27,302
Conference room equipment	-	15,000	-
	$ 40,000	$ 45,000	$ 27,302
Office Furniture & Equipment			
Cubicles/Furniture	$ -	$ 8,000	$ -
AV Equipment	25,000	9,000	8,341
EV Charging Stations	-	15,000	-
	$ 25,000	$ 32,000	$ 8,341
Leasehold Improvements			
New Location-White Noise/Sound Proofing	-	23,000	17,532
New Location-Fixes	-	15,000	5,781
New Location- Mini split for IT closet	-	16,000	16,180
	$ -	$ 54,000	$ 39,493
Total Capital Expenditures	$ 65,000	$ 131,000	$ 75,136

Connecticut Green Bank
FY 2023 General Operations Budget - DRAFT
Strategic Partners

Partner	Department	RFP	Year of RFP	Work Performed	FY23 Budget	FY22 Budget
Adnet Technologies, LLC	General Operations	Y	2021	IT Outsourcing	$ 400,000	$ 380,000
Clean Power Research, LLC	Incentive Programs	Y	2020	PowerClerk Software	200,000	470,000
Alter Domus (formerly Cortland)	Financing Programs	Y	2020	CPACE - Loan Servicing	130,720	152,000
CSW LLC	Financing Programs/Marketing	Y	2019	Technical Assistance for State and Municipal Solar Projects	350,000	451,250
Inclusive Prosperity Capital	Multiple	N [1]		Program Execution and Investment Management	1,366,220	1,366,220
Also Energy LLC	Multiple	Y	2020	Monitoring Platform, Active Monitoring, RGM replacement for residential RSIP, SL2, and commercial PPA projects	1,300,000	1,033,000
DNV (includes what was formerly ERS)	Multiple	Y	2018, 2021	CPACE Technical Administrator; SHREC Due Diligence	120,000	209,000
Guidehouse (formerly Navigant) [2]	Incentive Programs	Y	2018, 2021	Battery storage EM&V and Technical Support	620,000	300,000
Novasource (f.k.a. SunSystem Technology - SST)	Incentive Programs	Y	2021	Operations and Maintenance for SL2 and 3G meter replacement	800,000	
PKF O'Connor Davies	General Operations	Y	2022	Auditing Services - CGB Annual Audit, CGB Green Liberty Notes Annual Audit	100,000	-
C-TEC Solar, LLC	Multiple	Y	2021	Servicing PPA systems from a technical perspective (operations & maintenance)	1,225,000	565,000
Stark Raving	Marketing	Y	2020, 2021	Marketing Strategy, Media purchases, Website design	700,000	425,000
					$ 7,311,940	$ 5,351,470

Inclusive Prosperity Capital Breakdown

PSA	Human Capital Component	Administrative Component	FY23 Budget	FY22 Budget
Commercial Solar	$ 714,132	$ 27,450	$ 741,582	$ 789,982
LMI / Inv Management	-	-	-	229,438
Smart-E	305,222	11,800	317,022	243,384
Multifamily	296,115	11,500	307,615	103,416
	$ 1,315,470	$ 50,750	$ 1,366,220	$ 1,366,220

[1] The Board of Directors of the Green Bank, per the Sustainability Strategy Pathway which was approved on December 15, 2017, reviewed and approved a series of agreements between the Green Bank and Inclusive Prosperity Capital on July 27, 2018, July 18, 2019, and June 26, 2020. Per the Comprehensive Plan of the Green Bank, IPC is a strategic partner of the organization.

[2] The Green Bank Board of Directors authorized a multi year PSA with Guidehouse for $1 million in March of 2022. The above request is inclusive of the portion of that PSA that is expected to be spent in FY2023.

CGB-Primary Government
Balance Sheet

		CGB-Primary Government As of 12/31/2021	CGB-Primary Government As of 06/30/2021	CGB-Primary Government YTD $ Change
Assets				
Current Assets				
Cash and Cash Equivalents **(1)**	{a}	52,533,889	41,325,251	11,208,638
Due From Component Units (SL2/SL3/CSS)	{b}	43,091,668	40,214,090	2,877,578
Other Current Assets	{c}	12,290,364	11,201,099	1,089,265
Total Current Assets		107,915,921	92,740,440	15,175,481
Noncurrent Assets				
Program Loans/Notes Receivable and Other Investments	{d}	90,847,457	99,353,879	(8,506,422)
Capital Assets, net	{e}	14,037,474	14,317,215	(279,741)
Restricted Assets **(1)**	{f}	14,726,059	17,121,688	(2,395,629)
Total Noncurrent Assets		119,610,990	130,792,782	(11,181,792)
Total Assets		**227,526,911**	**223,533,222**	**3,993,689**
Liabilities				
Current Liabilities	{g}	10,565,848	11,827,744	(1,261,896)
Noncurrent Liabilities				
Bonds Payable-SHREC ABS 1	{h}	32,831,710	34,065,119	(1,233,409)
Bonds Payable-Green Liberty Bonds	{i}	39,985,000	41,629,000	(1,644,000)
Total RSIP Bonds Payable		72,816,710	75,694,119	(2,877,409)
Bonds Payable-CREBs	{j}	9,966,230	9,966,229	1
Pension & OPEB Liabilities	{k}	43,957,238	43,957,238	0
Total Noncurrent Liabilities		126,740,178	129,617,586	(2,877,408)
Total Liabilities		**137,306,026**	**141,445,330**	**(4,139,304)**
Deferred Inflows of Resources	{l}	**2,509,946**	**2,509,946**	**0**
Total Net Position		**87,710,939**	**79,577,946**	**8,132,993**

(1) The $52.5M unrestricted balance at 12/31/2021 was mostly due to the issuance of two series of Special Capital Reserve Fund (SCRF) backed Green Liberty Bonds in FY21. The purpose of these issuances was to refinance expenditures of the Green Bank related to its Residential Solar Incentive Program (RSIP) per CGS 16-245ff. As of 12/31/21, unfunded and committed Solar PV incentives related to the RSIP program totaled approximately $37.9M, to be paid to third parties over the next six fiscal years using the $39.6M proceeds from these two bond issuances. Additionally, $5.0M of RGGI funds are committed to Class 1 Renewable projects under the Regional Greenhouse Gas Initiative and not yet spent as of 12/31/21.

	Actual	Adj for RSIP/RGGI Commitments	Total
Cash - Unrestricted	$ 52,533,889	$ (42,900,000)	$ 9,633,889
Cash - Restricted	14,726,059	42,900,000	57,626,059
Total Cash	**$ 67,259,948**	**$ -**	**$ 67,259,948**

* Additionally, Pursuant to CGS 16-245n(h), the State cannot impair the Green Bank's rights or obligations contained in contracts it has with third parties unless the State otherwise makes the third party whole pursuant to the Green Bank's unique non-impairment clause. As such, please contact the Green Bank before any material funding reductions or sweeps to ensure this non-impairment clause is not triggered. This could impact the Green Bank's or the State's credit and bond rating, if applicable.

Appendix

{a} Cash and Cash Equivalents includes all unrestricted cash accounts for the CT Green Bank and all entities included within the Primary Government for financial reporting purposes.

{b} Due from Component Units represents the balance due to CGB's primary government through intercompany receivable accounts, the bulk of which relates to investment made in the CTSL2 and CTSL3 programs via CEFIA Solar Services Inc.

{c} Other Current Assets are made up of Accounts Receivable, Utility Remittance Receivable, Interest Receivable, Other Receivables and Prepaid Expenses

{d} Program Loans/Notes Receivable and Other Investments include the principal balances of all outstanding Program Loans, SBEA Notes, Solar Lease 1 Notes as well as some additional smaller investments made.

{e} Capital Assets, net represent the cost of all capital assets that are owned by entities of the Primary Government, including Solar PV systems, furniture and equipment, leasehold improvements and computer hardware.

{f} Restricted Assets includes all restricted cash accounts such as loan loss reserves, Special Capital Reserve Funds (SCRFs) related to the bonds outstanding and other contractually restricted cash accounts

{g} Current Liabilities includes accounts payable and accrued expenses (including accrued incentives), accrued interest, and custodial liabilities

{h} SHREC ABS 1 Bonds Payable represent the outstanding principal remaining on $38.6M in bonds issued in March 2019. These bonds were collateralized by revenue from sales of SHRECs for two tranches of approx. 14,000 residential Solar PV systems to two CT utilities. These mature in 2033.

{i} Green Liberty bonds represent the outstanding principal remaining on the $16.8M Series 2020 and $24.8M Series 2021 Green Liberty Bonds, collateralized by revenues from sales of SHRECs related to Tranche 3(Series 2020) and Tranche 4 (Series 2021). These mature in 2037.

{j} Bonds Payable- CREBs are two separate Clean Energy Renewable Energy bonds issued in February 2017 for just under $3.0M(Meriden Hydro project) and December 2017 for $9.1M (CSCUs project). These mature in 2038.

{k} Pension and OPEB Liabilities represent the actuarially determined Pension and OPEB liabilities allocated to the CT Green Bank out of the SERS retirement plans. This number is uncontrollable by the Green Bank, with the amount to be booked provided by the actuarial valuation on an annual basis.

{i} Deferred inflows of resources are a governmental accounting function which represents an acquisition of net position that applies to future periods and will not be recognized until that time. Amounts included here are functions of the Pension and OPEB actuarial valuations and are updated on an annual basis.

CGB-Primary Government
Organizational P&L

		Consolidated 07/01/2021 Through 12/31/2021				
		Actual	Budget	Variance	Prior Year Actual	Variance
Total Revenues						
Public Revenues	{a}	18,470,854	18,455,227	15,628	15,917,217	2,553,637
Earned Revenues	{b}	10,524,027	9,971,115	552,911	10,028,031	495,996
Total Revenues		**28,994,881**	**28,426,342**	**568,539**	**25,945,248**	**3,049,633**
Total Operating Expenses						
Personnel Related Operating Expenses	{c}	4,918,672	5,504,290	(585,618)	4,177,423	741,249
Non-Personnel Related Operating Expenses	{d}	4,531,065	6,240,249	(1,709,185)	4,993,409	(462,344)
Total Operating Expenses		**9,449,737**	**11,744,539**	**(2,294,803)**	**9,170,832**	**278,905**
Margin ($) - All Revenues		**19,545,144**	**16,681,803**		**16,774,416**	
Margin (%) - All Revenues		**67.4%**	**58.7%**		**64.7%**	
Margin ($) - Pre Public Revenues		**1,074,290**	**(1,773,424)**		**857,199**	
Margin (%) - Pre Public Revenues		**3.7%**	**-6.2%**		**3.3%**	
Total Non-Operating Expenses						
Program Incentives and Grants	{e}	8,655,804	8,720,640	(64,836)	9,117,790	(461,986)
Non-Operating Expenses	{f}	2,772,090	3,003,719	(231,630)	2,639,883	132,207
Total Non-Operating Expenses		**11,427,894**	**11,724,359**	**(296,466)**	**11,757,673**	**(329,779)**
Total Expenses		**20,877,630**	**23,468,898**	**(2,591,268)**	**20,928,505**	**(50,875)**
Net Margin ($) - All Revenues (*)		**8,117,251**	**4,957,444**	**3,159,807**	**5,016,743**	**3,100,508**
Net Margin (%) - All Revenues		**28.0%**	**17.4%**		**19.3%**	

* Net Margin represents the Operating Results of the Green Bank before impact of State Pension and OPEB allocation of costs based on the annual actuarial valuation performed of the benefit plans.

Appendix

{a} Public Revenues include system benefit charges from electric ratepayers and RGGI allowance proceeds.

{b} Earned Revenues include interest income, REC sales, PPA income and other revenues earned by the Primary Government.

{c} Personnel Related Operating Expenses include Salaries, benefits and payroll taxes.

{d} Non-Personnel Related Operating Expenses include all other operating expenses not related to personnel, including O&M, tech support costs, IPC human capital, marketing, consulting, rent, insurance, IT and other office expenses.

{e} Program Incentives and Grants are included in Non-Operating Expenses, and relate mostly to PBI & EPBB incentives paid out.

{f} Non-Operating Expenses include Interest expense (mostly on bonds), loan loss reserve expense, and Interest Rate Buydowns using ARRA funds.

Connecticut Green Bank
December 31, 2021 Financial Package
Historical Analysis of Compensation and Benefits

	FYE 6/30/22 As of 12/31/2021	FYE 6/30/21 Actual	FYE 6/30/20 Actual	FYE 6/30/19 Actual	FYE 6/30/18 Actual	FYE 6/30/17 Actual
Compensation:	**$ 2,600,204**	**$ 4,476,214**	**$ 3,931,596**	**$ 4,204,855**	**$ 5,154,021**	**$ 5,108,500**
Employee Benefits:						
State Retirement Plan Contributions	$ 1,781,206	$ 2,903,780	$ 2,411,864	$ 2,869,823	$ 3,013,747	$ 2,674,275
Medical Dental Rx Premiums	349,147	625,480	553,908	545,779	678,633	681,595
Total Employee Benefits	**2,130,353**	**3,529,260**	**2,965,772**	**3,415,602**	**3,692,380**	**3,355,870**
Total Compensation and Benefits	**$ 4,730,557**	**$ 8,005,474**	**$ 6,897,368**	**$ 7,620,457**	**$ 8,846,401**	**$ 8,464,371**
* **Retirement Plan Contributions as a % of Salary**	68.50%	64.87%	61.35%	68.25%	58.47% **	52.35%
Medical Dental Rx Premiums as a % of Salary	13.43%	13.97%	14.09%	12.98%	13.17%	13.34%
Total Benefits and Taxes as a % of Salary	81.93%	78.84%	75.43%	81.23%	71.64%	65.69%
*** **State of CT Comptroller Employer SERS Rate**	65.90%	64.14%	59.99%	64.30%	56.58%	54.99%

* Retirement Plan Contributions include Pension & OPEB, included Employer contirbutions to the Tier IV Defined Contribution for associated employees in that plan.
** OPEB began in the year ended 6/30/18.
*** State of CT Comptroller Employer SERS Rate provided via the annual "Fringe Benefit Recover Rate" memo issued 7/1 of each year by the State Comptroller.

Total Benefits Cost @ Hypothetical Benefits Rate	**35%**	910,071	1,566,675	1,376,059	1,471,699	1,803,907	1,787,975
Actual Total Compensation and Benefits		4,730,557	8,005,474	6,897,368	7,620,457	8,846,401	8,464,371
Less Total Compensation and Benefits @ Hypothetical Rate		(3,510,275)	(6,042,889)	(5,307,655)	(5,676,554)	(6,957,928)	(6,896,476)
Incremental HR cost due to State Benefits Charge		1,220,282	1,962,585	1,589,713	1,943,903	1,888,473	1,567,895

75 Charter Oak Avenue, Suite 1 - 103, Hartford, CT 06106
T 860.563.0015
ctgreenbank.com

CONNECTICUT GREEN BANK

Memo

To: Board of Directors of the Connecticut Green Bank

From: Sergio Carrillo, Bryan Garcia

Cc Mackey Dykes, Brian Farnen, Bert Hunter, Jane Murphy, and Eric Shrago

Date: June 24, 2022

Re: Energy Storage Solution Program – Upfront Incentive Approval Procedure

---

Background

The Energy Storage Solutions (ESS) Program was established by PURA in Docket No. 17-12-03RE03, PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage. In its Final Decision[1] in this docket, issued July 28, 2021, PURA appointed The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource), The United Illuminating Company (UI), and the Connecticut Green Bank (CGB) as co-administrators of the Program.

The Green Bank's responsibilities include customer enrollment, administration of the upfront incentive, communication and promotion of the Program, and data aggregation and publication, among others.

Administration of the upfront incentive

The Green Bank proposes to administer the upfront incentives in two steps: (1) the issuance of a Reservation of Funds (ROF) letter, provided to the project developer and customer upon verification that the Battery Energy Storage System (BESS) meets the minimum technical requirements necessary to participate in the Program, including equipment roundtrip efficiency and warranty, ability to comply with passive and active dispatch modes, and demonstrated ability to communicate with the dispatch platforms; and (2) issuance of a Confirmation of Funds (COF) letter, once the BESS is fully operational, meaning that the installation is complete and the equipment received all town and utility permits required for operations, and verification of connectivity with the dispatch platforms. Following COF letter, upfront incentive payments will be processed.

[1] https://tinyurl.com/2p8v4cwa

Calculation of upfront incentive

The calculation of the upfront incentive is primarily based on the usable energy capacity (kWh) of the BESS, with some limiting factors.

For residential customers, the upfront incentive is calculated based on the minimum of the following three formulas:

- Residential Formula 1: BESS rated energy capacity (kWh) * applicable incentive level
- Residential Formula 2: 50% of BESS total installed cost
- Residential Formula 3: Maximum per project incentive of $7,500

For non-residential customers, the upfront incentive is calculated based on the minimum of the following two formulas:

- Non-Residential Formula 1: BESS rated energy capacity (kWh) * applicable incentive level
- Non-Residential Formula 2: 50% of BESS total installed cost.

While the upfront incentive for residential customers is capped at a relatively low number, the upfront incentive for non-residential customers is not, and there are instances when the upfront incentive may surpass $500,000, which per the bylaws of the Green Bank,[2] require approval by the Board of Directors (the "Board").

Of the 124 residential incentive applications received to date, only 12 of them (9,7%) have reached the $7,500 cap, whereas of the 39 non-residential incentive applications, 17 of them (43.6%) are higher than $500,000, and up to $3,675,000, which require approval from the Board of Directors.

Upfront incentive approval process

Per the "Under $500,000 and No More in Aggregate than $1,000,000" process,[3] estimated upfront incentives under $500,000 will be approved by Green Bank staff, and will be issued a ROF letter upon approval.

For projects with estimated upfront incentive greater than $500,000, the Green Bank proposes to follow a process similar to the one used by C-PACE. We will prepare a tear sheet ("Tear Sheet") outlining key characteristics of the project, including customer, project, and site information; priority customer eligibility criteria, BESS characteristics, ratepayer and societal benefits generated by the program as represented by benefit-cost analysis ratios, and information related to the estimated upfront incentive – Please refer to the board package that shows a template of the project Tear Sheet, documentation collected for each incentive application, and an example of the ROF letter to be provided to project developers and customers.

Within the existing Board of Directors and Deployment Committee regular meeting schedule, the Green Bank staff will seek Board approval of these upfront incentives via consent agenda,

[2] https://www.ctgreenbank.com/wp-content/uploads/2021/11/5ai_Green-Bank_Revised-Bylaws_CLEAN.pdf - see Section 5.2.3 Deployment Committee

[3] https://www.ctgreenbank.com/wp-content/uploads/2022/02/Funding-Requests-Below-500000.pdf

and only after the upfront incentives are approved by the Board, Green Bank staff will issue ROF letters.

After projects are fully operational, Green Bank staff will notify the Board of their intent to issue COF letters, highlighting any differences between the Board-approved incentive and the final incentive amount, and the reason for the difference.

Resolution

WHEREAS, the Connecticut Green Bank ("Green Bank") was appointed Co-Administrator to the Energy Storage Solutions (ESS) Program ("Program") by PURA pursuant its Final Decision, within docket Docket No. 17-12-03RE0 (PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage) on July 28, 2021;

WHEREAS, the Program responsibilities of the Green Bank established by the July 28, 2021 Final Decision, include customer enrollment, upfront incentive administration, communication and promotion of the Program, and data aggregation and publication;

WHEREAS, the Green Bank proposes to administer the upfront incentive payments as through (i) the issuance of a Reservation of Funds (ROF) letter, provided to the project developer and customer upon verification that the Battery Energy Storage System (BESS) meets the minimum technical requirements necessary to participate in the Program, including equipment roundtrip efficiency and warranty, ability to comply with passive and active dispatch modes, and demonstrated ability to communicate with the dispatch platforms; (ii) the issuance of a Confirmation of Funds (COF) letter upon the completed installment of all equipment, the procurement of required utility permits, and the verification of connectivity with dispatch platforms;

WHEREAS, residential projects with an estimated upfront incentive payment not equal to or greater than $500,000 shall be approved by Green Bank staff and upon approval be issued a ROF letter; and, for a non-residential project with an estimated upfront incentive payment greater than or equal to $500,000, the Green Bank shall prepare a curated proposal to the Board for approval, per the bylaws of the Green Bank;

WHEREAS proposals for projects with an estimated upfront incentive payment equal to or greater than $500,000 shall include a Tear Sheet outlining customer, project, and site information; priority customer eligibility criteria, BESS characteristics, ratepayer and societal benefits generated by the program as represented by benefit-cost analysis ratios, and information related to the estimated upfront incentive payment;

WHEREAS, within the existing Board and Deployment Committee regular meeting schedule, the Green Bank staff shall seek Board approval of non-residential projects with estimated upfront incentive payments equal to or greater than $500,000 via consent agenda, and, upon approval by the Board, Green Bank staff shall issue ROF letters to the project developer and customer;

WHEREAS, after projects are fully operational, Green Bank staff shall notify the Board of their intent to issue COF letters, and, and as necessary, provide an analysis and explanation for any

differential between a approved estimated upfront incentive payment and the final incentive amount.

NOW, therefore be it:

RESOLVED, that the Board hereby approves the Green Bank's administration of upfront incentive payments as set forth in the memorandum to the Board dated June 24, 2022;

RESOLVED, that the Board hereby approves that upfront incentive payments under $500,000, as estimated by the Green Bank in fulfillment of its responsibilities set forth in the Program, be issued a ROF letter upon approval by internal Green Bank staff;

RESOLVED, that the Board hereby approves the implementation of an Upfront Incentive Project Approval procedure ("Procedure") involving of the issuance of a proposal for non-residential projects under consideration by the Green Bank in fulfillment of its responsibilities set forth in the Program with an estimated upfront incentive payment greater than $500,000;

RESOLVED, that as part of the Procedure, the Board hereby approves that Green Bank staff shall obtain Board approval of such estimated upfront incentive payments via consent agenda utilizing the Tear Sheet process described in the memorandum to the Board dated June 24, 2022; and,

RESOLVED, that as part of the Procedure, Green Bank staff shall notify the Board of intent to issue a COF letter for an approved Program-implemented, non-residential project with an upfront incentive payment equal to or greater than $500,000, upon such project's compliance with the minimum technical requirements as set forth in the memorandum to the Board dated June 24, 2022.

ATTACHMENTS REDACTED

CONTENTS INCLUDE COMMERCIALLY SENSITIVE INFORMATION, AND PERSONALLY IDENTIFIABLE INFORMATION (PII)

75 Charter Oak Avenue, Hartford. Connecticut 06106
T: 860.563.0015
www.ctgreenbank.com

Line of Credit Renewal

A Funding Facility for Connecticut Green Bank
Revolving Line of Credit Warehouse Funding Facility
Secured by SHRECs
June 17, 2022

Document Purpose: This document contains background information and due diligence on a proposed revolving line of credit warehouse funding facility for the Connecticut Green Bank which is presently being provided by Webster Bank and Liberty Bank, but subject to renewal upon its existing expiration date of July 31, 2022. 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.

Memo

To: Connecticut Green Bank Board of Directors

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

CC: Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Eric Shrago, Vice President of Operations, Jane Murphy, Executive Vice President of Finance and Administration; Director, Sergio Carrillo, Director of Incentive Programs

Date: June 17, 2022

Re: SHREC Warehouse Funding Facility Renewal

Background

Connecticut Green Bank (the "Green Bank") commenced a green bond issuing program in 2019. The Green Bank made issuances in 2019, 2020, and 2021, each of which were secured by receivables from Eversource and United Illuminating in respect of the Solar Home Renewable Energy Credit ("SHREC") program. The SHREC receivables are grouped into tranches according to the vintage of the underlying SHRECs. The "asset backed security" green bond issuance of 2019 was secured by Tranche 1 and 2 SHREC receivables, the 2020 SCRF-backed inaugural Green Liberty Bond was secured by Tranche 3, and the second Green Liberty Bond issued on Earth Day in 2021 being secured by Tranche 4.

In the period between issuing green bonds, the Green Bank utilizes a short-term revolving credit warehouse facility (the "Warehouse"), which is secured by the Tranche(s) that will later be removed as collateral for the Warehouse and used instead to secure the green bonds. The Warehouse facility size ($M) has varied depending on the size of the Tranche(s) securing it in the period in question. For the year ended July 31st, 2022, it is a $10M facility, secured by Tranche 5 SHREC receivables.

The Warehouse is a joint facility with two Connecticut banks (Webster Bank and Liberty Bank, collectively "Warehouse Lenders") was originally approved by the Board at its June 28, 2018 meeting. It had a term of one year with interest-only payments (i.e., no required repayment of principal except at facility maturity). The Board approved renewal of the Warehouse, i.e., extension for an additional one year period, at its July 18th, 2019, July 24th, 2020, and July 23rd, 2021 meetings. Please see Appendix B for the most recent memorandum to the Board concerning the Warehouse, dated July 16th, 2021.

Warehouse Renewal

Staff recommends continued utilization of this Warehouse facility that (a) provides a bridge to the next bond issuance and (b) enhances liquidity and allows the Green Bank to meet its significant obligations in a flexible manner (e.g., can draw and repay as needed). Staff is bringing forward for approval a 1-year renewal of the Warehouse (to July 31st, 2023) on the terms set out in the term sheet (Appendix A). The terms are substantially similar to those previously agreed for the Warehouse term ending July 31, 2022 with some exceptions noted in the summary below:

1. As is the case under the existing Warehouse, the Green Bank will continue to provide guaranty of repayment of the advances by the Warehouse Lenders as well as assign the rights to future tranches.
2. Change of interest rate basis from LIBOR to Secured Overnight Financing Rate ("SOFR"), the successor to LIBOR, which has now been phased out.
3. The interest rate (1 month term SOFR + 2.40%) equates to 3.91% as at June 16, 2022.
4. The facility size is reduced from $10M to $5M, but will include an accordion feature allowing it to be upsized back up to $10M if required.
5. Addition of collateral in the form of Tranche 6 SHREC receivables.
6. As before, there is a $75,000 facility fee and an unused fee of 0.50% per annum on any portion of the Warehouse that is fully committed (i.e., initially $5M) but not utilized.
7. Other key economic terms (interest-only payments (i.e., no required repayment of principal except at facility maturity) remain the same as before.

Staff requests approval by the Board to move forward with renewing and amending the warehouse funding facility and approve resolutions in respect of approval by the Green Bank as well as separate resolutions in respect of approval by SHREC WAREHOUSE 1 LLC, the wholly-owned subsidiary of Green Bank, as borrower under the Warehouse facility.

Resolution

All of the members of the Board of Directors (the "**Board**") of the Connecticut Green Bank, a quasi-governmental agency of the State of Connecticut (the "**Green Bank**"), which is the sole member of SHREC Warehouse 1 LLC, Connecticut limited liability company (the "**Company**"), hereby consent to and adopt the following resolutions for and on behalf of the Green Bank and, in the Green Bank's capacity as the sole member of the Company, for and on behalf of the Company:

WHEREAS, the Company intends to enter into a Third Amendment to Credit Agreement (the "**Third Amendment**"), which amends the Credit Agreement dated as of July 31, 2019, as amended by that certain First Amendment to Credit Agreement and Other Loan Documents dated July 28, 2020 and by that certain Second Amendment to the Credit Agreement and Other Loan Documents dated July 30, 2021 (collectively, the "**Credit Agreement**") with Webster Bank, National Association ("**Webster**"), as Administrative Agent (in such capacity, as "**Agent**") and as a lender and Liberty Bank, as Lead Arranger and as a lender (Webster and Liberty Bank, in their capacities as lenders, are referenced to herein collectively as, "**Webster-Liberty**"), whereby Webster-Liberty have made available to the Company a Five Million and 00/100 Dollar ($5,000,000) secured revolving line of credit, with a Five Million and 00/100 Dollar ($5,000,000) uncommitted accordion feature ("**Loan**") for the purpose of financing the Tranche 5-2021 and Tranche 6-2022 (as defined in the Credit Agreement) Solar Home Renewable Energy Credit program ("**Tranche 5-2021 SHRECs**" and "**Tranche 6-2022 SHRECs**" respectively); and

WHEREAS, the Company and Green Bank have requested that Webster-Liberty and Agent modify the Loan and the terms of the Credit Agreement pursuant to the Third Amendment, in order to, among other things, secure the Loan with the Tranche 6-2022 SHRECs as collateral and extend the term of the Loan; and

WHEREAS, in connection with the modification of the Loan, the Company and Green Bank, as applicable, shall also enter into those documents listed on Exhibit A attached hereto (collectively, the "**Modification Documents**"); and

WHEREAS, to induce Webster-Liberty to continue to extend the Loan to the Company, Green Bank shall continue to guarantee the Loan pursuant to the Guaranty Agreement dated as of July 31, 2019 made by Green Bank in favor of Agent (the "**Guaranty**"); and

WHEREAS, along with a general repayment obligation by the Company, Agent and/or Webster-Liberty are secured by, and the Company and the Green Bank are authorized to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty (i) a first priority security interest in all assets of the Company, (ii) a collateral assignment of and security interest in all of the Company's and the Green Bank's right, title and interest in the Tranche 5-2021 SHRECs and Tranche 6-2022 SHRECs and all rights and obligations relating thereunder under those certain Master Purchase Agreements for the Purchase and Sale of Solar Home Renewable Energy Credits by and between the Green Bank and each of The Connecticut Light & Power Company d/b/a Eversource Energy and The United Illuminating Company each dated February 7, 2017, each as amended by those certain First Amendments, dated July 30, 2018, as further amended by those certain Second Amendments, dated April 1, 2020, (as further amended from time to time, the "**MPAs**"), which collateral assignment and security interest shall include any and all rights to payment of money under the MPAs with respect to Tranche 5-2021 and Tranche 6-2022 SHRECs and those other attributes and rights associated with the Tranche 5-2021 and Tranche 6-2022 SHRECs, (iii) a collateral

assignment of all of the right, title and interest in that certain Sale and Contribution Agreement by and between Green Bank and the Company, dated as of the date of the closing of the Loan, including without limitation, any security interest created under the Sale and Contribution Agreement, and (iv) a security interest in the MPA Collection Account, the Webster Interest Reserve Account and the Liberty Interest Reserve Account (the security interests listed in (i)-(iv) hereof, together, the "**SHREC Collateral**"); and

WHEREAS, Webster-Liberty has requested and the staff of Green Bank has recommended that the Board provide these resolutions approving the renewal and extension of the Loan and the Green Bank's guarantee thereof in accordance with the terms of the Third Amendment.

NOW, therefore be it:

RESOLVED, that the Board of the Green Bank hereby authorizes, ratifies and approves the Loan, as modified, from Webster-Liberty to the Company pursuant to the terms of the Third Amendment and the Modification Documents and authorizes, ratifies, directs and approves the Company's and the Green Bank's entering into the Third Amendment and the Modification Documents to which it is a party and of each other contract or instrument to be executed and delivered by the Company and the Green Bank in connection with the transactions contemplated by the Third Amendment; and be it further

RESOLVED, that the Board of the Green Bank hereby reauthorizes, ratifies and reaffirms the Green Bank's obligations under the Guaranty; and be it further

RESOLVED, that each of the Company and the Green Bank be and it hereby is, authorized to continue to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty a first priority security interest in and to the Company's property, including, without limitation the SHREC Collateral; and be it further

RESOLVED, that the Board hereby authorizes, directs, ratifies and approves Green Bank's and the Company's execution, delivery and performance of the Third Amendment and the other Modification Documents and all of the Green Bank's and the Company's obligations under the Third Amendment and the other Modification Documents; and be it further

RESOLVED, that the actions of Bryan Garcia in his capacity as the President and Chief Executive Officer of Green Bank ("**Garcia**"), Roberto Hunter in his capacity as the Chief Investment Officer of Green Bank ("**Hunter**") and Brian Farnen in his capacity as General Counsel and Chief Legal Officer of Green Bank ("**Farnen**"; and together with Garcia and Hunter, each an "**Authorized Signatory**"), are hereby ratified and approved with regard to the negotiation, finalization, execution and delivery, on behalf of Green Bank and the Company, of the Third Amendment and the other Modification Documents and any other agreements that they deemed necessary and appropriate to carry out the foregoing objectives of Green Bank and/or the Company, and any other agreements, contracts, legal instruments or documents as they deemed necessary or appropriate and in the interests of Green Bank and/or the Company in order to carry out the intent and accomplish the purpose of the foregoing resolutions are hereby ratified and approved; and be it further

RESOLVED, that the Authorized Signatories be, hereby are, acting singly, authorized, empowered and directed, for and on behalf of the Green Bank and the Company (in the Green Bank's capacity as the sole member of the Company), to execute and deliver the Third Amendment and the other Modification Documents; and be it further

RESOLVED, that any other actions taken by any Authorized Signatory are hereby approved and ratified to the extent that such Authorized Signatory or Authorized Signatories have deemed such actions necessary, appropriate and desirable to effect the above-mentioned legal instrument or instruments.

EXHIBIT A

MODIFICATION DOCUMENTS

1. Perfection Certificate made by the Company in favor of Agent.
2. Third Amended and Restated Collateral Assignment of Master Purchase Agreements and Other Loan Documents made by the Company and Green Bank to Agent.

Appendix A

Term Sheet - summary

SHREC Warehouse 1, LLC, (a special purpose vehicle wholly owned by the Connecticut Green Bank – hereinafter "**Company**" or "**Borrower**") has applied to Webster Bank, National Association ("**Webster**") and Liberty Bank ("**Liberty**" – each of Webster and Liberty a "**Bank**" and together the "**Banks**") for up to $5,000,000 of loans (the "**Loan**").

Borrower	SHREC Warehouse 1, LLC – a special purpose vehicle and direct wholly owned "single member" LLC subsidiary of the Connecticut Green Bank
Guarantor	The Connecticut Green Bank ("**Guarantor**")
Credit Facility	Revolving Line of Credit not the exceed $5,000,000 with uncommitted accordion feature for up to an additional $5,000,000. The accordion feature is subject to final approval review by the Banks, prior to the exercise of this feature.
Use of Proceeds	For working capital purposes of the Guarantor and to make incentive payments under the Guarantor's Residential Solar Investment Program (RSIP); and bridge finance the securitization of Tranches 5 & 6.
Facility Maturity	364 days from closing (the "**Maturity Date**").
Interest Rate	Variable based on 1 month Term SOFR rate plus 2.40%.
Payment	Monthly interest payments with any principal and remaining interest due at the earlier of the Maturity Date or sale of the collateral.
Unused Fee	Half of 1% payable monthly in arrears.
Commitment Fee	$75,000 payable at closing, with 50% due to each Bank.
Security	First priority lien on all assets of the Borrower. Guarantor or Borrower shall collaterally assign to the Banks (i) its rights in respect of each SHREC Tranche 5 and 6; (ii) its rights in each SHREC MPA (shared with existing SHREC noteholders under the SHREC 2019-1 ABS securitization; (iii) full and unconditional guarantee of payment from Connecticut Green Bank and any rights of payment guarantee under state statutes; and (iv) assignment of the Guarantor's membership interest in the Borrower.
Debt Service Reserve	Minimum of $100,000 at all times and increasing in value commensurate with the amount in borrowed funds and not to exceed $300,000.
Deposit Accounts	The Borrower will maintain all of its primary operating accounts at the Agent Bank.
Loan Documents	The Loan Documents shall contain representations and warranties, conditions precedent to closing, affirmative and negative covenants, and events of default as are customary for loans of this size, type and purpose.
Financial Reporting	Audited financial statements of the Borrower and Guarantor to be submitted within 120 days of each fiscal year end and tax returns within 15 days of filing. All financial statements will be prepared in accordance with GAAP or GASB consistently applied and accompanied by an unqualified statement from an independent certified public accountant (such independent certified public accountant shall be acceptable to the Banks).

	Within 45 days after the close of the 1st, 2nd and 3rd fiscal quarters, unaudited financial statements of the Borrower and Guarantor. All financial statements shall be accompanied by a covenant compliance certificate.
Expenses	The Borrower agrees to reimburse each Bank for its reasonable attorneys' fees and expenses.
Governing Law	State of Connecticut

Appendix B

Memorandum to the Board of Directors dated July 16th, 2021

75 Charter Oak Avenue, Hartford. Connecticut 06106
T: 860.563.0015
www.ctgreenbank.com

Line of Credit Renewal

A Funding Facility for Connecticut Green Bank

Revolving Line of Credit Warehouse Funding Facility

Secured by SHRECs

July 16, 2021

Document Purpose: This document contains background information and due diligence on a proposed revolving line of credit warehouse funding facility for the Connecticut Green Bank which is presently being provided by Webster Bank and Liberty Bank, but subject to renewal upon its existing expiration date of July 31, 2021. 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.

Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP and CIO and Mike Yu, Director, Clean Energy Finance

CC: Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Eric Shrago, Managing Director of Operations, Jane Murphy, Executive Vice President of Finance and Administration; Director, Sergio Carrillo, Director of Incentive Programs

Date: July 16, 2021

Re: SHREC Warehouse Funding Facility Renewal

In a memo to the Connecticut Green Bank (the "Green Bank") Board of Directors (the "Board") dated July 24th 2020 (the "July 2020 Memorandum" see enclosed file: "6d_SHREC_Warehouse_Renewal_Memo (07.22.20) (_revised).PDF"), staff recommended a renewal and amendment of a short-term revolving credit warehouse facility (the "Warehouse"). The renewal allowed the Green Bank to remove the Tranche 3-2019 ("Tranche 3") of Solar Home Renewable Energy Credits ("SHRECs") as collateral, which was needed for the issuance of 2020 Green Liberty Bonds ("GLB"), and substitute in Tranche 4 to enable continued use of the Warehouse. Attached to the July 2020 Memorandum was a summary of key amendments for the Warehouse renewal.

The original warehouse funding concept was a non-restoring line of credit, a joint facility with two Connecticut banks (Webster and Liberty, collectively "Warehouse Lenders") approved by the Board at its June 28, 2018 meeting. The Board subsequently approved the Warehouse (with the "revolving" feature) at its July 18th, 2019 meeting, and Green Bank and the Warehouse Lenders executed documentation for the Warehouse with effect from July 31st, 2019.

As part of the Green Bank's 2021 GLB issuance, which was approved by the Board at its April 6th, 2021 meeting, Tranche 4 was sold from the Warehouse SPV back to the Green Bank in order to serve as collateral for the bonds. The Green Bank is unable to draw on the Warehouse without collateral, but Tranche 5 of SHRECs was fully executed with the utilities in June 2021 and can now be used as collateral. Staff expects Tranche 6 (est. July 2022) will also be available as collateral once it is executed with the utilities. Staff recommends continued utilization of this short-term revolving warehouse facility that (a) provides a bridge to the next bond issuance and (b) enhances liquidity and allows the Green Bank to meet its significant obligations in a flexible manner (e.g., can draw and repay

as needed). Staff is bringing forward for approval a 1-year renewal of the Warehouse (to July 31st, 2022) on substantially similar terms as discussed in the 2020 memo except with the ability to both (a) substitute in Tranche 5 collateral, and (b) remove and sell the Tranche 5 back to the Green Bank as needed for Green Liberty Bond issuances.

1. As is the case under the existing Warehouse, the Green Bank will continue to provide guaranty of repayment of the advances by the Warehouse Lenders as well as assign the rights to future tranches.
2. The spread over LIBOR remains 2.40% with a floor for LIBOR of 0.50% (unchanged).
3. The facility size remains $10,000,000 and as is the case at present can be upsized back to $14,000,000 (and potentially higher if required – dependent upon the value of the SHREC collateral.
4. As before, there is a $75,000 facility fee and an unused fee of 0.50% per annum on any portion of the Warehouse that is fully committed (i.e., initially $10 million) but not utilized.
5. Other key economic terms (interest-only payments (i.e., no required repayment of principal except at facility maturity) remain the same as before.

Staff requests approval by the Board of Directors to move forward with renewing and amending the warehouse funding facility and approve resolutions in respect of approval by the Green Bank as well as separate resolutions in respect of approval by SHREC WAREHOUSE 1 LLC, the wholly-owned subsidiary of Green Bank, as borrower under the SHREC Revolving Credit Facility.

Resolution

All of the members of the Board of Directors (the "**Board**") of the Connecticut Green Bank, a quasi-governmental agency of the State of Connecticut (the "**Green Bank**"), which is the sole member of SHREC Warehouse 1 LLC, Connecticut limited liability company (the "**Company**"), hereby consent to and adopt the following resolutions for and on behalf of the Green Bank and, in the Green Bank's capacity as the sole member of the Company, for and on behalf of the Company:

WHEREAS, the Company intends to enter into a Second Amendment to Credit Agreement (the "**Second Amendment**"), which amends the Credit Agreement dated as of July 31, 2019, as amended by that certain First Amendment to Credit Agreement and Other Loan Documents dated July 28, 2020 (collectively, the "**Credit Agreement**") with Webster Bank, National Association ("**Webster**"), as Administrative Agent (in such capacity, as "**Agent**") and as a lender and Liberty Bank, as Lead Arranger and as a lender (Webster and Liberty Bank, in their capacities as lenders, are referenced to herein collectively as, "**Webster-Liberty**"), whereby Webster-Liberty have made available to the Company a Ten Million and 00/100 Dollar ($10,000,000) secured revolving line of credit, with a Four Million and 00/100 Dollar ($4,000,000) uncommitted accordion feature ("**Loan**") for the purpose of financing the Tranche 5-2021 (as defined in the Credit Agreement) Solar Home Renewable Energy Credit program ("**Tranche 5-2021 SHRECs**"); and

WHEREAS, the Company and Green Bank have requested that Webster-Liberty and Agent modify the Loan and the terms of the Credit Agreement pursuant to the Second Amendment, in order to, among other things, secure the Loan with the Tranche 5-2021 SHRECs as collateral and extend the term of the Loan; and

WHEREAS, in connection with the modification of the Loan, the Company and Green Bank, as applicable, shall also enter into those documents listed on Exhibit A attached hereto (collectively, the "**Modification Documents**"); and

WHEREAS, to induce Webster-Liberty to continue to extend the Loan to the Company, Green Bank shall continue to guarantee the Loan pursuant to the Guaranty Agreement dated as of July 31, 2019 made by Green Bank in favor of Agent (the "**Guaranty**"); and

WHEREAS, along with a general repayment obligation by the Company, Agent and/or Webster-Liberty are secured by, and the Company and the Green Bank are authorized to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty (i) a first priority security interest in all assets of the Company, (ii) a collateral assignment of and security interest in all of the Company's and the Green Bank's right, title and interest in the Tranche 5-2021 SHRECs and all rights and obligations relating thereunder under those certain Master Purchase Agreements for the Purchase and Sale of Solar Home Renewable Energy Credits by and between the Green Bank and each of The Connecticut Light & Power Company d/b/a Eversource Energy and The United Illuminating Company each dated February 7, 2017, each as amended by those certain First Amendments, dated July 30, 2018, as further amended by those certain Second Amendments, dated April 1, 2020, (as further amended from time to time, the "**MPA's**"), which collateral assignment and security interest shall include any and all rights to payment of money under the MPA's with respect to Tranche 5-2021 SHRECs and those other attributes and rights associated with the Tranche 5-2021 SHRECs, (iii) a collateral assignment of all of the right, title and interest in that certain Sale and Contribution Agreement by and between Green Bank and the Company, dated as of the date of the closing of the Loan, including without limitation, any security interest created under the Sale and Contribution Agreement, and (iv) a security interest in the MPA Collection Account, the Webster

Interest Reserve Account and the Liberty Interest Reserve Account (the security interests listed in (i)-(iv) hereof, together, the "**SHREC Collateral**"); and

WHEREAS, Webster-Liberty has requested and the staff of Green Bank has recommended that the Board provide these resolutions approving the renewal and extension of the Loan and the Green Bank's guarantee thereof in accordance with the terms of the Second Amendment.

NOW, therefore be it:

RESOLVED, that the Board of the Green Bank hereby authorizes, ratifies and approves the Loan, as modified, from Webster-Liberty to the Company pursuant to the terms of the Second Amendment and the Modification Documents and authorizes, ratifies, directs and approves the Company's and the Green Bank's entering into the Second Amendment and the Modification Documents to which it is a party and of each other contract or instrument to be executed and delivered by the Company and the Green Bank in connection with the transactions contemplated by the Second Amendment; and be it further

RESOLVED, that the Board of the Green Bank hereby reauthorizes, ratifies and reaffirms the Green Bank's obligations under the Guaranty; and be it further

RESOLVED, that each of the Company and the Green Bank be and it hereby is, authorized to continue to secure the Loan and the Guaranty by, among other things, granting to Agent and/or Webster-Liberty a first priority security interest in and to the Company's property, including, without limitation the SHREC Collateral; and be it further

RESOLVED, that the Board hereby authorizes, directs, ratifies and approves Green Bank's and the Company's execution, delivery and performance of the Second Amendment and the other Modification Documents and all of the Green Bank's and the Company's obligations under the Second Amendment and the other Modification Documents; and be it further

RESOLVED, that the actions of Bryan Garcia in his capacity as the President and Chief Executive Officer of Green Bank ("**Garcia**"), Roberto Hunter in his capacity as the Chief Investment Officer of Green Bank ("**Hunter**") and Brian Farnen in his capacity as General Counsel and Chief Legal Officer of Green Bank ("**Farnen**"; and together with Garcia and Hunter, each an "**Authorized Signatory**"), are hereby ratified and approved with regard to the negotiation, finalization, execution and delivery, on behalf of Green Bank and the Company, of the Second Amendment and the other Modification Documents and any other agreements that they deemed necessary and appropriate to carry out the foregoing objectives of Green Bank and/or the Company, and any other agreements, contracts, legal instruments or documents as they deemed necessary or appropriate and in the interests of Green Bank and/or the Company in order to carry out the intent and accomplish the purpose of the foregoing resolutions are hereby ratified and approved; and be it further

RESOLVED, that the Authorized Signatories be, hereby are, acting singly, authorized, empowered and directed, for and on behalf of the Green Bank and the Company (in the Green Bank's capacity as the sole member of the Company), to execute and deliver the Second Amendment and the other Modification Documents; and be it further

RESOLVED, that any other actions taken by any Authorized Signatory are hereby approved and ratified to the extent that such Authorized Signatory or Authorized Signatories have deemed such actions necessary, appropriate and desirable to effect the above-mentioned legal instrument or instruments.

EXHIBIT A

MODIFICATION DOCUMENTS

3. Perfection Certificate made by the Company in favor of Agent.
4. Second Amended and Restated Collateral Assignment of Master Purchase Agreements and Other Loan Documents made by the Company and Green Bank to Agent.

Parks and Recreation

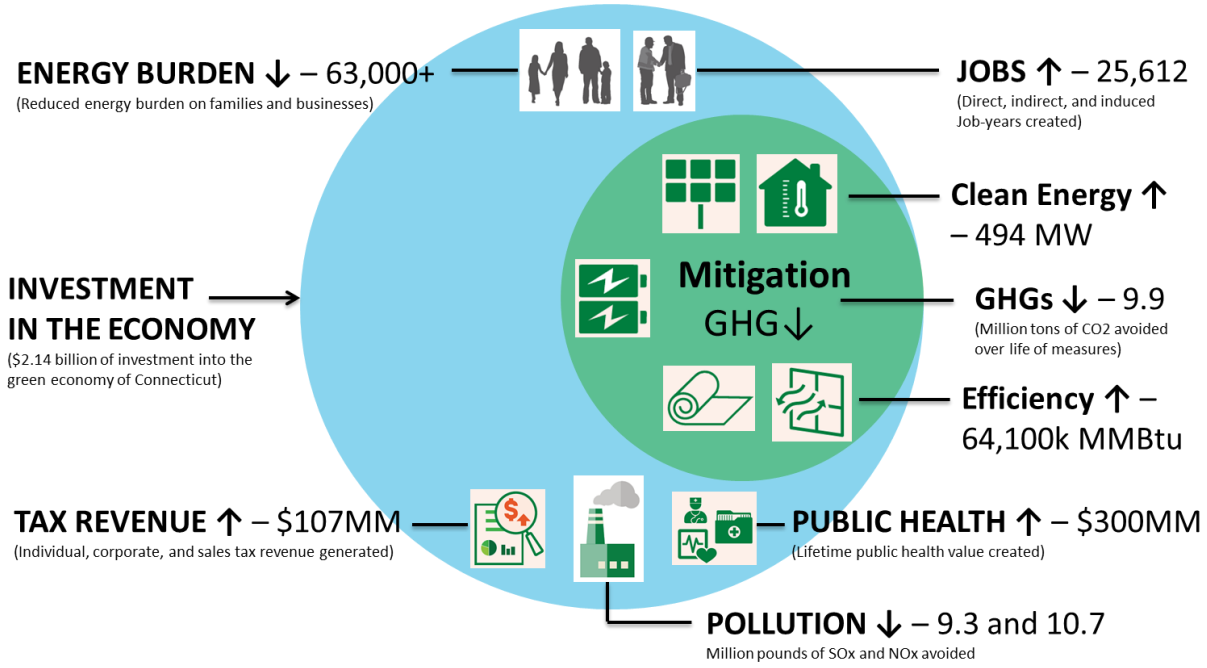
Stakeholder Engagement and Research on Environmental Infrastructure

A. OVERVIEW

On July 6, 2021, Governor Ned Lamont signed Public Act 21-115 "An Act Concerning Climate Change Adaptation" ("the Act") into law. The bipartisan-supported public policy was among the sixty-one (61) recommendations made by the Governor's Council on Climate Change ("GC3"), including a recommendation to expand the scope of the Connecticut Green Bank ("Green Bank") beyond "clean energy" to include "environmental infrastructure" (i.e., Recommendation #57).

Since its founding over a decade ago, the Green Bank has focused its efforts on using a limited amount of public resources to mobilize multiples of private investment in Connecticut to increase and accelerate the deployment of "clean energy" to deliver social and environmental impact – see Figure 1.

Figure 1. Decennial Impact of the Green Bank with focus on "Clean Energy" Deployment and Mitigation of GHG Emissions



Given its mission "to confront climate change and provide all of society a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy," the Green Bank helps the State of Connecticut achieve its ambitious public policy objectives (e.g., GHG emission reductions targets, renewable portfolio standards). In so doing, by 2025, no less than 40 percent of investment and benefits from its programs are to be directed to vulnerable communities.[1]

[1] "Vulnerable communities" means populations that may be disproportionately impacted by the effects of climate change, including, but not limited to, low and moderate income communities, environmental justice communities pursuant to section 22a-20a, communities eligible for community reinvestment pursuant to section 36a-30 and the Community Reinvestment Act

The Act, expands the scope of the Green Bank beyond "clean energy" to include "environmental infrastructure," and includes the following key provisions:

- **Definition** – "environmental infrastructure" means structures, facilities, systems, services and improvement projects related to (A) water, (B) waste and recycling, (C) climate adaptation and resiliency, (D) agriculture, (E) land conservation, (F) parks and recreation, and (G) environmental markets, including, but not limited to, carbon offsets and ecosystem services;

- **Comprehensive Plan** – requirement for the Green Bank to develop a Comprehensive Plan[2] prior to implementing any programs or initiatives related to "environmental infrastructure";

- **Reporting** – inclusion of the Banks Committee and the Environment Committee, alongside the Energy and Technology Committee and Commerce Committee in terms of reporting; and

- **Bonding** – the ability to issue 25-year bonds for "clean energy" and 50-year bonds for "environmental infrastructure" (i.e., no more than the useful life of the projects), supported by the Special Capital Reserve Fund ("SCRF"), for up to 25 years to improve the rating of the bonds issued.

This document attempts to summarize the findings from the research and outreach efforts conducted by the Green Bank[3] on "parks and recreation" from October 2021 through January of 2022 and includes the following sections: (A) overview, (B) key public policies, (C) market potential, (D) target, (E) funding and financing programs, (F) other programs, (G) stakeholder outreach, (H) findings, (I) opportunities, (J) history of leadership and innovation, (K) references, and (L) definitions.

Infrastructure investments in "parks and recreation" can support the Green Bank's mission by both mitigating the GHG emissions that cause climate change (e.g., carbon sinks from urban tree canopy cover) and increasing resilience against the impacts of climate change (e.g., stormwater management through urban parks).

B. KEY PUBLIC POLICIES

The following are key public policies that advance "parks and recreation" in Connecticut, including, but not limited to:

1. **State Plan of Conservation and Development** (CGS 16a-24) – is an overarching statement of state policy in matters pertaining to land and water resource conservation and development. The Office of Policy and Management ("OPM") prepares revisions to the State Conservation and Development Plan ("State C&D Plan") on a recurring 5-year cycle and submits it for adoption by the Connecticut General Assembly ("CGA"). Once adopted, the State C&D Plan is then implemented by state agencies whenever they undertake certain actions.[4] The current State

of 1977, 12 USC 2901 et seq., as amended from time to time, populations with increased risk and limited means to adapt to the effects of climate change, or as further defined by DEEP in consultation with community representatives.

[2] https://www.ctgreenbank.com/wp-content/uploads/2021/07/3_Comprehensive-Plan_FY-2020-and-Beyond_Final.pdf

[3] Led by Bryan Garcia (President and CEO) and Ashley Stewart (Consultant)

[4] Quasi-publics are not subject to this requirement

C&D Plan (i.e., for 2018-2023), includes the relevant "clean energy" and "environmental infrastructure" items, including, but not limited to:

A. **Greenhouse Gas Mitigation** – reducing carbon dioxide emissions in the state consistent with the recommendations of the Connecticut Climate Change Preparedness Plan (i.e., 5.10);

B. **Climate Adaptation and Resilience** – including developing and deploying innovative energy technologies, and promoting distributed generation and microgrids to provide reliable electrical power or energy-dependent community services during outages and peak demand periods (i.e., 1.12) and minimizing the potential risks and impacts from natural hazards by considering potential impacts of climate change on existing and future development (i.e., 1.13); and

C. **Parks and Recreation** – encouraging and promoting access to parks and recreational opportunities, including trails, greenways, community gardens, and mixed-income housing (i.e., 2.8) and protecting the ecological, scenic, and recreational value of lakes, rivers, and streams by promoting compatible land uses and management practices in accordance with adopted plans.

2. **Open Space Target** (CGS 23-8)[5] – establishes a mandate to conserve 21% (i.e., 673,210 acres) of state land area as held by open space land, with 10% from the state (e.g., forests, parks) and not less than 11% from partners (e.g., municipalities, water companies, or non-profit land conservation organizations). The Comprehensive Open Space Acquisition Strategy (or "Green Plan")[6] is the comprehensive strategy for achieving the state goal by 2023, which includes priorities for strategic acquisitions of open space for climate change resiliency and preserving open space in perpetuity for state lands with high conservation value.

3. **Community Investment Act** (Public Act 05-228)[7] – "An Act Concerning Farm Land Preservation, Land Protection, Affordable Housing and Historic Preservation," also known as the Community Investment Act ("CIA"), CIA provides a dedicated and consistent source of funding for state preservation of open space (Department of Energy and Environmental Protection or "DEEP"), farmland (Department of Agriculture or "DoAg"), historic sites (Department of Economic and Community Development or "DECD"), and affordable housing (Connecticut Housing Finance Authority or "CHFA"). Through a $40 surcharge on local land recordings (i.e., $1 to Town Clerk, $3 to local government, $10 supplemental income to dairy farmers, and $26 to State Treasurer), about $22 MM is raised each year, which is equally distributed in four (4) parts to the priority funding areas.

4. **Passport to the Parks** – beginning in 2018, Connecticut offered all residents with Connecticut license plates on their vehicles free entry and parking at all state parks and beaches. Connecticut wants to make state parks, forests, trails, historic sites and beaches more available to residents so they can enjoy the many attractions and beauty they offer. Passports to the Parks raises $20

[5] https://law.justia.com/codes/connecticut/2012/title-23/chapter-447/section-23-8/
[6] https://portal.ct.gov/DEEP/Open-Space/The-Green-Plan
[7] https://www.cga.ct.gov/2005/ACT/Pa/pdf/2005PA-00228-R00SB-00410-PA.pdf

MM per year for park operations and maintenance through a $5/year/vehicle motor vehicle registration fee. This policy supports parks and removes historic cost barriers to enter them.

5. **Great American Outdoors Act** ("GAOA") – permanently funds the Land and Water Conservation Fund ("LWCF") at $900 MM a year, a significant source of resources from the United States Government ("USG") for open space and parks. GAOA also provides $9.5 billion over five years to address longstanding maintenance backlogs in our national parks, forests, and other public lands.

In order to identify opportunities to mobilize private investment, it is important to understand the public policy context in which "parks and recreation" operates. With the focus on the Green Bank's mission (i.e., confront climate change), public policy provides a mechanism to catalyze private investment.

C. MARKET POTENTIAL

The following is a breakdown of the market potential for "parks and recreation" from the perspective of active[8] and passive[9] outdoor recreation facilities, and on "land" or "water" based activities from the Statewide Comprehensive Outdoor Recreation Plan ("SCORP") – see Table 1.

Table 1. Outdoor Recreation Facilities in Connecticut (2005)

Outdoor Recreation Type	# of Facilities	DIRPS[10] per 10,000 Residents	Ownership		
			Statewide Average	Municipal Average	Other Average
Active – Land	4,788	1.4	4%	77%	20%
Active – Water	137	0.4	2%	69%	30%
Passive – Land	1,957	1.0	27%	46%	27%
Passive – Water	1,130	1.1	22%	45%	33%
Total	8,012	1.2	14%	62%	24%

Despite the age of the data, several general observations can be made with respect to active and passive outdoor recreation, including:

- **Active Recreation** – in a state with the headquarters of the Entertainment Sports Programming Network ("ESPN"), municipalities are the dominant stakeholder when it comes to active outdoor recreation facilities, with the highest use frequency index for swimming;

- **Passive Recreation** – when it comes to passive outdoor recreation facilities, the ownership between stakeholders is dominated by:

    - **Statewide** – hunting;

[8] Active outdoor recreation facilities based on 2005 data (X – #) and 2017 use frequency index data, if available (# – Y), include fields, courts, and courses for baseball and softball (984 – 16.0), basketball (645 – 23.0), football (154 – 10.0), golf (125 – 13.6), multi-use (624), soccer (495 – 14.6), tennis (384 – 11.2), and volleyball (74 – 23.0), as well as playgrounds (1,065), swimming pools (137 – 60.9), and winter sports (238 – 9.3)

[9] Passive outdoor recreation facilities based on 2005 data (X – #) and 2017 use frequency index data, if available (# – Y) include access to sites for beaches (176 – 60.1), boating (285 – 10.9), camping (88 – 13.5), fishing (669 – 19.0), gardens (109), historic landmarks (99 – 35.9), hunting (88 – 3.5), picnics (677), and trails (896 – 102.8)

[10] Discrete Identifiable Recreation Places

- **Municipalities** – beach, boating, fishing, gardens, historic, picnic areas, and trails with the highest use frequency index for hiking on both public and private lands;[11]

- **Other** – camping.

- **Access Prevention** – in terms of what is preventing access to recreation, surveys indicate that 88% and 56% of citizens get to facilities by automobile or walking, respectively, and 20% to 23% of survey respondents indicate that fees are too high and facilities are too far.

The "No Child Left Inside" and "Passport to the Parks" programs, promote Connecticut citizens enjoying active and passive outdoor recreation facilities on land or water-based activities.

The Trust for Public Land's ("TPL") ParkScore Index is a comprehensive rating system to measure how cities are meeting the needs for parks.[12] In an effort to assess ParkScore, the following data are for Connecticut's "Top 10" most populated municipalities – see Table 2.

Table 2. "Top 10" Most Populated Municipalities in Connecticut and ParkScore

City	Population	Acres	% Land as Parks	Acres of Land as Parks	Acres of Parks per 10,000 Residents	# of Parks	Parks per 10,000 Residents	10-Minute Walk
Hartford	121,203	11,136	9%	1,002	83	218	18.0	99%
New Haven	130,764	11,968	12%	1,436	110	128	9.8	96%
West Hartford	63,063	13,952	20%	2,790	442	48	7.6	82%
Stamford	129,302	24,064	5%	1,203	93	54	4.2	74%
New Britain	72,303	8,576	7%	600	83	23	3.2	73%
Bridgeport	143,653	10,304	7%	721	50	35	2.4	73%
Waterbury	106,458	18,240	6%	1,094	103	30	2.8	60%
Norwalk	88,326	14,656	3%	440	50	45	5.1	55%
Bristol	59,639	16,896	4%	676	113	20	3.4	51%
Danbury	84,732	26,880	5%	1,344	159	17	2.0	37%

ParkScore provides excellent quantitative data in which to make general observations about the state of parks within a municipality in comparison to the national average. For example, the national average for the percentage of residents with a 10-minute walk to parks and the median percentage of municipal lands as parks is 55% and 15%, respectively. For example, 99% of citizens residing in Hartford have a 10-minute walk to a park, which is high compared to the national average, yet only 9% of land in Hartford is parks, which is low compared to the national average.

The quality of parks is difficult to discern. To better understand the quality of parks, TPL partnered with the Urban Resources Institute ("URI") to compare New Haven against the nation's most populous cities

[11] Managed by the Connecticut Forest and Parks Association, the Blue-Blazed Hiking System includes more than 825 miles of hiking to explore the woodlands, remote ridges, and wild places of Connecticut.

[12] The "% of Land as Parks," "# of Parks," and "10-Minute Walk" data were used from TPL's ParkScore data set.

on five (5) categories reflective of an excellent city park system: Acreage,[13] Access,[14] Investment,[15] Amenities,[16] and Equity[17] – see Table 3.[18]

Table 3. TPL and URI Analysis of New Haven Compared to Other Cities

City	Overall	Acreage	Access	Investment	Amenities	Equity
New Haven, CT	60	36	95	35	71	65
Boston, MA	-	47	100	79	65	79
Baltimore, MD	-	25	81	68	40	83
Buffalo, NY	-	25	85	47	61	64

The TPL-URI research also delves deeper into the twenty (20) neighborhoods of New Haven to collect data with respect to population, acres of parks, and acres per 1,000 population, as well as demographic data including income and people of color. Based on data from TPL from 14,000 cities, parks that serve low-income households are four (4) times as crowded as parks that serve high-income households, and parks that serve people of color are five (5) times as crowded as parks that serve majority-white populations.[19] Such analyses in municipalities across Connecticut could elucidate opportunities for areas of improvement, including improving the public health of residents with access to parks and the economic development impact of property values within proximity to parks.

Although Connecticut has the highest urban tree cover in the United States at 62%,[20] there are opportunities to improve urban tree canopy cover to reduce heat island effects in urban neighborhoods across the state that lack the shading benefits that tree canopies provide to reduce heat and improve air quality while supporting better public health.[21] For example, Bridgeport, Hartford, and New Haven's tree canopy cover is 27%,[22] 25%,[23] and 38%[24] respectively.

D. TARGET

There is no public policy target for "parks and recreation" in Connecticut beyond the open space land target outlined in CGS 23-8 and Green Plan, respectively (i.e., 21% by 2023) – see the "land conservation" document for quantitative details. It is the expectation that the open space land policy

[13] Acreage score indicates the relative abundance of large 'destination' parks, which include large natural areas that provide critical mental health as well as climate and conservation benefits.

[14] Access score indicates the percentage of the city's residents that live within a walkable half-mile of a park – the average distance that most people are willing to walk to reach a destination.

[15] Investment score indicates the relative financial health of a city's park system, which is essential to ensuring parks are maintained at a high level for all to enjoy.

[16] Amenities score indicates the relative abundance of six park activities popular among a multi-generational cross-section of user groups (i.e., playgrounds, basketball courts, dog parks, senior and recreation center, splashpads, and permanent restrooms).

[17] Equity score indicates how fairly parks and park space are distributed within a city, including percentage of people of color and low-income households within a 10-minute walk of a park, and comparison of the amount of park space between neighborhoods by race and income.

[18] For example, a score of 90 means that the municipality is within the top 90 percent across the country.

[19] "The Heat is On" by The Trust for Public Lands

[20] Connecticut's 2020 Forest Action Plan (p. 7)

[21] "Tree Canopy Assessment – Southern Connecticut Region" by the Southern Connecticut Regional Council of Governments and the University of Vermont Spatial Analysis Laboratory.

[22] A Report on the City of Bridgeport's Existing and Possible Urban Tree Canopy

[23] Hartford Connecticut's Tree Canopy Action Plan 2020

[24] A Report on the City of New Haven's Existing and Possible Urban Tree Canopy

and goal would provide public recreation opportunities on state, municipal, private, and water utility lands.

Beyond a target the U.S. Bureau of Economic Analysis conducts research on special topics, including the outdoor recreation economy. The Outdoor Recreation Satellite Account measures the economic activity as well as the sales or receipts generated by outdoor recreational activities. These statistics measure each industry's production of outdoor goods and services – see Table 4.

Table 4. Connecticut GSP and Employment for 2020 – Comparison for Outdoor Recreation[25] vs. Clean Energy[26]

Economic Activity	GSP ($MM's)	Percent of GSP	Employment	% of Employment
Outdoor Recreation	$3,298	1.2	41,721	2.6
Clean Energy	$6,640	2.4	41,488	2.6

Expenditures in the outdoor recreation economy in Connecticut includes – see Table 5.

Table 5. Expenditures in the Outdoor Recreation Economy in Connecticut

Conventional Outdoor Recreation Activities[27] ($MM's)	Other Outdoor Recreation Activities[28] ($MM's)	All Other Supporting Outdoor Recreation ($MM's)	Government Expenditures ($MM's)	Total Outdoor Recreation Activities ($MM's)
$1,411	$572	$1,158	$156	$3,298

E. FUNDING AND FINANCING PROGRAMS

The following is an alphabetical breakdown of the current funding (i.e., grants) programs in support of "parks and recreation" in Connecticut, including, but not limited to:

- **Brownfield Remediation Program** – the Infrastructure Investment and Jobs Act ("IIJA" or Bipartisan Infrastructure Law – "BIL") provides $1.5 billion in supplemental funding to the EPA for brownfield remediation programs – $1.2 billion of funds are set aside for competitive grants for site assessment and remediation projects. Funding can be accessed by quasi-public entities.

- **Charter Oak Open Space Trust Account** – a defunct program for several years now, which included two accounts to fund new open space purchase programs, including 40% to the Charter Oak State Parks and Forest Account for state acquisition of open space and watershed land, and 60% to the Charter Oak Open Space Grant Program to provide grants to municipalities and nonprofit land conservation organizations to acquire open space or watershed protection land.

- **Connecticut Open Space and Watershed Land Acquisition Grant Program** ("OSWA") (CGS 7-131d) – a matching grants program to provide financial assistance to municipalities, land trusts,

[25] "Outdoor Recreation Satellite Account, US and States, 2020" by the Bureau of Economic Analysis (November 9, 2021)
[26] "Connecticut Clean Energy Industry Report" (September 2021)
[27] Boating, fishing, RV'ing, and snow activities
[28] Amusement parks, water parks, festivals, sporting events, concerts, game areas (e.g., golf, tennis)

and water companies to acquire open space and watershed lands. Initiated in 1998, is funded by state bonding and the CIA, provides financial assistance to municipalities and nonprofit land conservation organizations to acquire land for open space, and to water companies to acquire land to be classified as Class I or Class II water supply property, and is administered by DEEP to leverage state, local, and private funds to create a cooperative open space acquisition program.

Since 1998, DEEP has awarded over $150 MM in open space grant funds to protect over 41,000 acres (or $3,659/acre).

- **Hazardous Substance Superfund Remediation** – the IIJA provides $3.5 billion in supplemental funding to the EPA Superfund Program to support cleanup of large sites contaminated by commercial or industrial pollution that poses risks to people's health and the environment. This program is administered in partnership with states.

- **Land and Water Conservation Fund** ("LWCF") – LWCF is a federal program that was established by an Act of Congress in 1965 to provide funds and matching grants to federal, state and local governments for the acquisition of land and water, and easements on land and water, for the benefit of all Americans. The main emphases of the fund are recreation and the protection of national natural treasures in the forms of parks and protected forest and wildlife areas. In August 2020, the President Trump signed the Great American Outdoors Act into law, which requires that the LWCF be funded at $900 million yearly, a significant increase from previous funding levels.

- **National Park Service – Rivers, Trails and Conservation Assistance Program** ("NPS-RTCA") – NPS-RTCA's technical assistance program supports locally-led conservation and outdoor recreation projects. The program assists communities and land managers in evolving climate resiliency strategies, developing or restoring parks, conservation areas, rivers, and wildlife habitats, as well as creating outdoor recreation opportunities and programs that engage future generations in the outdoors.

- **Recreation and Natural Heritage Trust Program** ("RNHT") – administered by DEEP, is the main program to purchase or conserve lands for conservation and public use or benefit.

  Since 1998, the State Bond Commission has approved $177 MM to go towards the RNHTP to protect over 49,000 acres (or $3,611/acre).

- **Sustainability and Equity (Raise) Grant Program** – the IIJA provides $7.5 billion in supplemental funding to the DOT for bikeway, trail, and pedestrian projects.

The following is a breakdown of the current financing (i.e., loans) programs that could support parks and recreation in Connecticut:

- **State Revolving Fund** ("SRF") – since 1988, Connecticut has received over $650 MM from the federal government through the Clean Water SRF, while providing cumulative assistance (i.e., including state investment) of $2.8 billion of investment primarily in centralized wastewater treatment infrastructure (in comparison to stormwater, energy conservation, and water

conservation infrastructure).[29] With the passage of the bipartisan supported "Investing in Infrastructure and Jobs Act" ("IIJA" or Bipartisan Infrastructure Law "BIL") in November of 2021, there were additional resources allocated to the SRF for water quality and drinking water (i.e., $445 million).[30] SRF could be used to invest in green infrastructure projects (e.g., land conservation, nature-based solutions) for both mitigation and adaptation.

Accessing funding or financing resources for "parks and recreation" in Connecticut can be difficult. Identifying new mechanisms to access additional funding and financing resources, especially those that seek to unlock more private capital investment, could provide a catalyst to increase and accelerate investment in parks and recreation in Connecticut. The IIJA presents an opportunity to access funding and financing resources through formula or competitive grants for "parks and recreation".

F. OTHER PROGRAMS

The following are other items of note with respect to "parks and recreation":

- **Greenways** – it should be emphasized, that greenways are an integral part of the parks and recreation system as "linear parks" and provide active economic development (i.e., tourism), public health, and transportation opportunities. There is and/or will be 195 miles of greenway in Connecticut, that is frequently visited by millions of users a year, especially during COVID, who use the greenways for walking, jogging, and cycling on the trails for exercise, recreation, and relaxation.

- **No Child Left Inside** – launched in 2006, *No Child Left Inside*® is a promise to introduce children to the wonder of nature – for their own health and well-being, for the future of environmental conservation, and for the preservation of the beauty, character and communities of the state.

- **State Natural Heritage, Open Space & Land Aquisition Review Board** – is an independent advisory group of volunteers appointed by the Governor and leadership within the CGA under CGS 7-131(e) to oversee OWSA and RNHT programs.

G. STAKEHOLDER OUTREACH

In an effort to understand the public policy and marketplace context for "parks and recreation" in Connecticut, the Green Bank met with many organizations.[31]

These 24 organizations primarily represent non-profit organizations but include public and for-profit organizations as well.

The objectives of these one-hour conversations included:

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[29] Including Title II and VI funds – https://www.epa.gov/sites/default/files/2021-02/documents/ct.pdf

[30] https://www.whitehouse.gov/wp-content/uploads/2021/08/CONNECTICUT_The-Infrastructure-Investment-and-Jobs-Act-State-Fact-Sheet.pdf

[31] Land Conservation – American Forest Foundation, Audubon Connecticut, Connecticut Audubon, Connecticut Land Conservation Council, Conservation Finance Network, DEEP, Ecosystem Investment Partners, Goldman Sachs, Highstead, New England Forestry Foundation, New England Society of American Foresters, Quantified Ventures, Save the Sound, The Nature Conservancy, TNC's Nature Vest Program, and Yale Forest School
Parks and Recreation – Connecticut Forest and Parks Association, Connecticut Greenways Council, Connecticut Recreation and Parks Association, DEEP, Green Eco Warriors, Keney Park Sustainability Project, Sierra Club, Trust for Public Lands, and Urban Resources Initiative.

- **Introductions** – to get a better understanding of the mission and initiatives of the various public, nonprofit, and for-profit stakeholders operating within the "parks and recreation" space, and to introduce the Green Bank;

- **Environmental Infrastructure** – inform the various stakeholders about the "environmental infrastructure" policy,[32] process the Green Bank is pursuing to develop a Comprehensive Plan, and to elicit discussion on the following areas:

    - **Relevance** – how relevant "environmental infrastructure" and its components (e.g., parks and recreation) are to the stakeholder's mission and initiatives;

    - **Policies and Targets** – what local, state, and federal policies (e.g., Community Investment Act), including plans (e.g., Green Plan) are important from the stakeholder's perspective, and what targets (e.g., 21% open space land by 2023) are they seeking to achieve;

    - **Metrics** – what are the key metrics stakeholders believe are important in terms of monitoring and evaluating success from investments in "environmental infrastructure" improvements and "parks and recreation";

    - **Vulnerable Communities** – how does the stakeholder's organization think about the impacts that must be addressed from climate change to build the resilience of vulnerable communities; and

    - **Stakeholder Identification** – who else should the Green Bank meet with on the topic.

From these conversations, the Green Bank was able to develop a better understanding as to the role it might play in terms of financing "parks and recreation" from the perspective of its mission – to confront climate change.

H. FINDINGS

Based on the various meetings with public, nonprofit, and private stakeholders, the following are key findings with respect to parks and recreation (it should be noted that additional findings have been generalized in the footnote):[33]

- **Consistent with Mission to Confront Climate Change** – "parks and recreation" reduces GHG emissions (e.g., carbon sequestration) and increases resilience (e.g., stormwater management, heat stress), and therefore is consistent with the Green Bank's mission to "confront climate change". Parks provide an excellent ability to address stormwater, bioswales, and mitigate flooding, and also sequester carbon through urban tree canopy cover.

[32] Public Act 21-115 – An Act Concerning Climate Change Adaptation"

[33] Additional findings – opportunity to connect land trusts to hiking trails, BIPOC communities prioritize basic needs, municipalities shy away from open space investment because no staff to maintain, municipalities are giving up on federal grant programs because they are too onerous (e.g., reporting requirements), nonprofit membership groups have access to practitioners and contractors.

- **Public Health Improvement** – although no research was provided nor sited, stakeholders continuously spoke to the ability of urban and rural parks to provide public health benefits,[34] including, but not limited to outdoor places as respite from being inside (e.g., managing through COVID), and reducing heat stress (e.g., shade from trees, cooling from splashpads and pavilions). In subsequent analyses by the Green Bank in reading the literature, there were various relevant references noted, including:

    - "A wealth of research indicates that escaping to a neighborhood park, hiking through the woods, or spending a weekend by the lake can lower a person's stress levels, decrease blood pressure and reduce the risk of asthma, allergies, diabetes, and cardiovascular disease, while boosting mental health and increasing life expectancy."[35]

    - "Spending time and living near green spaces have been associated with various improved mental health outcomes, including less depression, anxiety, and stress. Several studies have demonstrated a dose-response relationship between more time spent in green spaces and lower depression rates. Therefore, green space may be a potential buffer between inequitable neighborhood conditions and poor medical health outcomes."[36]

    - "Neighborhoods with more socioeconomically disadvantaged residents and families of color tend to have fewer nearby residential parks, and financial and transportation limitations that prevent access to parks and wilderness outside of city limits…For these reasons, promoting nature contact and ensuring equitable access to green spaces could play a role in improving health outcomes and behaviors, and reducing health disparities."[37]

    - "…a one-hundred dollar increase, in 2010 dollars, in per capita parks and recreation operational expenditures was associated with a decrease in mortality of 3.9 to 3.4 deaths per 100,000,…While a conceptual linkage between parks funding, use, availability, programming and health could be made, our analysis provides robust empirical evidence linking funding and health. When considering the topic of healthcare spending, we view parks and recreation as an indirect form of healthcare spending. Evidence suggests that many individuals view parks and recreation as an essential component of the healthcare system."[38]

- **Inadequate Investment in Economic Development** – parks serve as public places to support the economic development of a community. Municipal budgets often cut financial and human resources to parks first because they are not a public works priority. Park programs have to be self-sufficient (e.g., fees for services) like small businesses to survive. The availability of funding

[34] "Reconnecting people to the healing value of nature," as noted by Herb Virgo from the Keney Park Sustainability Project, a 693-acre park located in Bloomfield, Hartford, and Windsor

[35] *How Much Nature is Enough? 120 Minutes a Week, Doctors Say* as reported by Knvul Sheikh of the New York Times (June 13, 2019)

[36] *Effect of Greening Vacant Land on Mental Health of Community-Dwelling Adults* by Eugenia C. South, et al. Jama Network Open (July 20, 2018)

[37] *Nature and Children's Health: A Systematic Review* by Amber L. Fyfe-Johnson, et al. Pediatrics (October 2021)

[38] "The relationship between parks and recreation per capita spending and mortality from 1980 to 2010: A fixed effects model" in Preventative Medicine Reports by J. Tom Mueller, et al (January 2019)

resources to support parks and recreation is inadequate. Investment in parks is an investment in the infrastructure supporting economic development, housing, public health, and transportation – which goes beyond DEEP, and is inclusive of other state agencies, including DECD, DOH, DPH, and DOT, respectively.

- **Money is Not Always the Problem** – as important as local, state, federal, and private funding and financing resources are, sometimes not having enough people (including lack of diversity), having onerous or inappropriate processes (e.g., urban tree removal for powerline protection), an inability to speak to co-benefits (e.g., job creation, resilience, wellness), or lack of engagement of local communities can substantially inhibit progress towards increasing investment in parks and recreation.

- **Impact Metrics** – the following is a "high level" breakdown of the types of metrics appropriate for parks and recreation – see Table 6.

Table 6. Relevant Metrics Identified by Stakeholders on Parks and Recreation

Inputs	Outputs	Outcomes
○ Investment in parks ○ Investment in projects ○ Sources of public (e.g., local, state, federal) and private funds ○ Leverage (i.e., public vs. private funds) ○ Individual investment (e.g., Community Match Fund, Green Liberty Bonds and Notes) ○ Funding (i.e., grants) vs. financing (i.e., loans)	○ # and types of amenities ○ Location of projects ○ Acres conserved (including donations vs. purchases) ○ # of users or visitors ○ Annual accessibility ○ Park revenues ○ # of closures ○ Tree density/linear street mile ○ Distance to a park ○ Acres/population ○ Acres/income ○ Increased engagement of BIPOC community to parks and recreation	○ GHG emissions reduced or sequestered ○ Resilience improvement (e.g., # people at reduced risk of flooding, heat exposure) ○ Water quality improvement (e.g., stormwater management, bioswales) ○ Jobs created ○ Address and quantify social determinants of health (i.e., wellness) ○ Leadership of BIPOC communities in building resilience for their own communities ○ Local property value ○ Tax revenue to state and local government from park tourism ○ Advancements in public policy to recognize the value of parks and recreation (e.g., municipal budgets)

- **Vulnerable Communities** – are being disproportionately impacted by the impacts of climate change (i.e., those who have contributed the least are being impacted the most). Structural racism is evidenced in vulnerable communities by applications for assistance (e.g., government grants) not being conducive to funding BIPOC communities and leaders (e.g., lack of trust), lack of inclusion of and inability for vulnerable populations to participate in regulatory processes (e.g., compensation for time), lack of workforce development opportunities, including accessible locations for training, and more.

These are the key findings from the stakeholders on parks and recreation.

I. OPPORTUNITIES

The following is a list of opportunities for consideration by the Green Bank given the broad categories of information and data, environmental markets and conservation finance, funding and financing sources, and other potential opportunities:

1. **Information and Data** – as a foundation, access to high quality information is important from which to base decisions. The following is a breakdown of opportunities for consideration with respect to information and data:

    A. **ParkScore** – support the expansion of the TPL-URI ParkScore tool assessing the five (5) areas of quality parks beyond New Haven, and apply to the "Top 5" most populated cities in Connecticut. Explore the possibility of Sustainable CT including within its points-based system, as well as raising funds through the Community Match Fund.

    B. **Pipeline Assessment** – work with CIRCA and DEEP to continuously build and assess the pipeline of potential GHG emission mitigation and climate change adaptation and resilience projects (e.g., type, size, scope, and estimated impact) related to parks and recreation (e.g., Meriden Green).[39]

    C. **Data Collection and Research** – support data collection and research that attempts to quantify the carbon offset, ecosystem services, public health, and economic development values of urban and rural parks. The research should seek to answer the question of "how does investment in parks result in co-benefits to climate change" with a focus on resilience and public health.

2. **Environmental Markets and Conservation Finance** – in terms of identifying potential carbon offset and/or ecosystem services revenue streams within compliance and voluntary markets that can support financing of parks and recreation, the following is a breakdown of opportunities for consideration with respect to environmental markets and conservation finance:

    A. **Conserve Urban Lands as Parks** – improving access to parks and recreation in vulnerable communities, can restore brownfields and abandoned lots, reduce GHG emissions, increase resilience against the impacts of climate change (e.g., flooding, stormwater management), and improve health wellness. Finding ways to support the growth and development of urban parks (e.g., Remington Woods in Bridgeport,[40] Olin Power Farm in Hamden, Keney Park in Hartford, CT) and greening abandoned lots through public-private partnerships that can improve the local economy, improve public health, and confront climate change. Identifying mechanisms, including stormwater management, to raise funds for capital improvements and/or investments in new assets (e.g., urban

[39] https://www.meridenct.gov/city-services/parks-and-recreation/meriden-green/

[40] 420 acres (i.e., 350 acres in Bridgeport and 70 acres in Stratford), including a 40 acre lake sitting on an old Remington arms testing site and now brownfield owned by Corteva. Corteva currently undergoing site remediation which will require 3-4 years to complete and approximately $80 million of remediation costs.

ecology wellness and/or sustainability centers) to modernize parks in vulnerable and BIPOC communities and make them more accessible will improve opportunities for economic development and public health.

B. **Urban Tree Canopy** – support municipal efforts to increase urban tree canopy cover. When planted properly, a tree can save homeowners up to 20 percent on their energy costs, while simultaneously reducing stormwater runoff, improving air quality, reducing urban heat island effects, absorbing carbon, and increasing property value through curb appeal. Hartford has an aggressive tree planting program to grow from 25% (i.e., approximately 568,000 trees) to 35% (i.e., an additional 150,000 trees) tree canopy cover by 2070.[41] Headquartered within the Hartford community, the Green Bank should support neighborhood tree planting, with a focus on the priority area of the Sheldon-Charter Oak neighborhood. Consideration could be given to exploring city forest credits for tree planting, with the Green Bank purchasing carbon offsets.[42]

C. **Park Prescriptions (ParkRx)**– as the birthplace of renown park designer and landscape architect Frederick Law Olmstead, and the self-proclaimed "Insurance Capital of the World," Hartford is the epicenter to where "park prescriptions" (or "ParkRx") should be developed, researched, practiced, and disseminated. ParkRx advantages include low-cost relative to conventional medical interventions, safety, practicality, not requiring dispensing by highly trained professionals, and multiple co-benefits[43] – including a number of benefits that nature provides, including psychological, cognitive, physiological, social, spiritual, and tangible well-being.[44] The Green Bank could initiate public-private partnerships (e.g., collaboration with Aetna, a subsidiary of CVS Health and managed health care company) that results in ParkRx being used to prevent and treat chronic disease and promote health wellness, while investing in and continuously maintaining urban and rural parks and recreation infrastructure, especially by increasing access to such infrastructure by vulnerable communities. Work with the Department of Insurance, AccessHealthCT, Aetna, and the City of Hartford to develop ParkRx to enable increased investment in parks and recreation that will not only confront climate change but improve public health.

3. Funding and Financing Sources – in terms of identifying additional funding (i.e., grants) and financing (e.g., loans) that can increase and accelerate investment, the following is a breakdown of opportunities for consideration with respect to funding and financing of parks and recreation:

A. Green Liberty Bonds – leverage the strength of the Green Bank balance sheet, with the award-winning climate bond structure of the Green Liberty Bonds modelled after the War Bonds of the 1940's, to support investments in parks and recreation:

i. Pilot Revolving Loan Fund for Buy-Protect-Sell – modelling the Conservation Fund's successful $150 MM green bond issuance in 2019 (i.e., 10-year rated A3

[41] Hartford Connecticut's Tree Canopy Action Plan 2020.
[42] https://www.cityforestcredits.org/
[43] "Nature Contact and Human Health: A Research Agenda" in Environmental Health Perspectives by Frumkin, Howard et al (July 2017)
[44] "What are the Benefits of Interacting with Nature?" in the International Journal of Environmental Reserahc and Public Health by Keniger, Lucy, et al (2013)

by Moody's), which created the Working Forest Fund,[45] and the Farmland Protection and Affordability Investment ("Farmland PAI") program of Washington State,[46] purchase land, including urban lots and potential linear greenways (e.g., abandoned railway lines), and work with appropriate stakeholder partners (e.g., community based organizations) to develop them into parks, community gardens, urban farms, and greenways and connect to ParkRx.

ii. **Passport to Parks Bonds** – work with DEEP to issue Green Liberty Bonds to raise capital from individual and institutional investors today for capital improvements and additional recreational assets needed at state parks backed by the expected revenues from Passport to Parks (i.e., generates approximately $20 MM a year). Focus the use of proceeds from such bonds on parks located within proximity to vulnerable communities to increase access to the co-benefits of such investments (e.g., resilience, public health).

iii. **Municipal Resilience or Stormwater Bonds** – work with local governments to develop a program to regularly issue Green Liberty Bonds and/or Green Liberty Notes to raise capital from individual and institutional investors today for capital improvements (e.g., bioswales) and additional recreational assets (e.g., trailways) at municipal places that improve resilience (e.g., coastal wetlands) backed by conveyance fees or reserve funds.[47]

B. **Community Match Fund** ("CMF") – a program of Sustainable CT, the Community Match Fund provides fast, flexible funding, and support for community engagement on a wide-range of sustainability projects. It uses an innovative, online tool to connect grant contributions from the "crowd," which are matched by various donor interests. As of January 1, 2022, the Fund has raised $1.3 MM from nearly 10,000 individual contributors, which was matched by $1.1 MM from various sponsors, and supported 195 projects. Work with Sustainable CT to enable the CMF to work for parks and recreation (e.g., ParkScore), as well as expand opportunities for points within the sustainability certification program.

C. **State Revolving Funds** – although not a Green Bank resource, existing and additional SRF resources could be used by the state to provide low-cost and long-term capital to finance green infrastructure projects (e.g., parks and recreation) in Connecticut. The Green Bank could recommend to its state colleagues that a portion of the SRF be used for green infrastructure projects in Connecticut as is being done by other states. Under the new guidelines for SRF resources, 49% of federal funds can be used as grants or forgivable loans for vulnerable communities. Consideration could be given to protecting parks, especially urban parks, where such loan forgiveness or grants in vulnerable

[45] The Working Forest Fund invests green bond proceeds to buy the most at-risk private forests. Once it owns the forest, it protects the land (i.e., easement), develops sustainable harvesting, wildlife, and habitat restoration plans, and then resells the land to private or public buyers to repay the loan. This fund has permanently conserved 500,000 acres, permanently storing over 210 MMTCO2e.

[46] http://www.wshfc.org/farmranch/FarmPAISlides.pdf

[47] Public Act 19-77 "An Act Authorizing Municipal Climate Change and Coastal Resiliency Reserve Funds"

communities could support such opportunities for improving green spaces and access to parks.

D. **Infrastructure Investment and Jobs Act** – there are a number of competitive grant programs that can be accessed to provide resources to cleanup brownfields. Exploring whether or not these funds can be accessed to cleanup former industrial property and convert them to urban parks (e.g., Bridgeport, Hamden) should be considered. In addition to clean-up programs, there are other programs for park planning, mobility, and other programs relevant to increasing and improving parks and recreation. The Green Bank could consider leveraging the strength of its financial position as a source of resources to hire grant writer(s), and/or serve as matching funds to improve success in competing for and winning federal resources through the IIJA.

4. **Other Potential Opportunities** – there are a number of other potential opportunities that can support financing of parks and recreation, including:

A. **Clean Energy and Sustainability Accelerator** – within the climate change programs proposed as part of the Build Back Better Act ("BBBA") is the Clean Energy and Sustainability Accelerator ("CESA"). Modelled after the Green Bank, the $29 billion allocated under CESA would provide state and local government with access to capital to finance projects that reduce GHG emissions, including nature-based solutions (e.g., parks and recreation).

B. **Climate Conservation Corps** – within the climate change programs proposed as part of the BBBA is the Climate Conservation Corps. Modelled after the Civilian Conservation Corps under President Franklin Roosevelt, the climate program centered around equity and environmental justice, could hire hundreds of thousands of young people to help restore and support parks. The Green Bank could include within its investment activity, the requirement for developers to include Climate Conservation Corps members. If Climate Conservation Corps is passed through the BBBA, then Connecticut should prioritize the involvement of BIPOC[48] populations and hire a leader from the BIPOC community to run it.

C. **Olmstead 200** – The acclaimed landscape architect Frederick Law Olmstead was born in Hartford, CT. In honor of the 200th anniversary of his birth in 1822, consideration could be given to initiating an urban parks design contest.[49] For example, the Green Bank could put up a prize money to the best design of an urban park in Connecticut with a focus on Keney Park (Bloomfield, Hartford, and Windsor), Olin Power Farm (Hamden), and Remington Woods (Bridgeport and Stratford). Connecting Olmstead's birthplace with the "Insurance Capital of the World" as noted above, is an opportunity for ParkRx to support public health wellness.

[48] Black, Indigenous, or People of Color
[49] https://olmsted200.org/

D. **Host Federal Official** – through the Intergovernmental Personnel Act ("IPA"),[50] the Green Bank could temporarily host a professionally skilled federal official from the Environmental Protection Agency, National Park Service, Health and Human Services, or other relevant agency to facilitate cooperation between the federal government and the Green Bank. Such an assignment would need to ensure that it is for sound public purposes and furthers the goals and objectives of the participating organizations.

These are a few of the opportunities identified by the Green Bank to support its mission and advance parks and recreation in Connecticut. Developing a method for prioritizing what opportunities under consideration are ultimately pursued, given the limited human and financial resources, and organizational structure of the Green Bank, is an activity for a later date.

J. HISTORY OF LEADERSHIP AND INNOVATION

The history of leadership and innovation in "clean energy" technology in Connecticut is marked, including those like:

- **Daniel Halladay** – an entrepreneur who lived in Coventry, CT who invented the self-regulating wind pump in the mid- to late-1800's, which enabled the transcontinental railroad;[5152]
- **Albert Pope** – an entrepreneur who lived in Hartford, CT who manufactured thousands of electric vehicles in the early 1900's, including one that transported President Roosevelt;[53] and
- **Bernard Baker** – an entrepreneur who lived in Bethel, CT who invented and manufactured fuel cells, which provide high reliable power.[54]

Beyond technology, Connecticut is also marked by leadership in society, including:

- **Freeman Sisters** – entrepreneurs who lived in Bridgeport, CT whose historic landmark homes once served as a destination in the Underground Railroad, and now stand in the shadows of a coal-fired power plant demonstrating environmental injustice in our society; and
- **Gina McCarthy** – an innovator who served as Connecticut's Commissioner of the Department of Environmental Protection under Governor Rell, to later become the Administrator of the USEPA under President Obama, and climate czar under President Biden.

The history of leadership and innovation in "environmental infrastructure" in Connecticut is also significant, especially when it comes to "parks and recreation," including:

- **Fredrick Olmsted** – an innovator who was born in Hartford, CT who is known as an American landscape architect for designing iconic parks such as Central Park in New York City.[5556]

[50] https://www.usgs.gov/human-capital/intergovernmental-personnel-act-ipa-mobility-program-guidance#:~:text=The%20Intergovernmental%20Personnel%20Act%20(IPA,and%20the%20non%2DFederal%20entity

[51] https://en.wikipedia.org/wiki/Daniel_Halladay

[52] https://en.wikipedia.org/wiki/Albert_Augustus_Pope

[53] https://whereilivect.org/made-in-connecticut-albert-popes-amazing-automobiles/

[54] https://en.wikipedia.org/wiki/Bernard_S._Baker

[55] https://en.wikipedia.org/wiki/Frederick_Law_Olmsted

[56] Check with State Historian Walt Woodward and former State Archaeologist Nick Bellantoni for additional thoughts

- **Stephen Kellert** – a professor of the Yale School of the Environment, pioneered the theory of biophilic design, an emerging field that promotes improved health and wellbeing by creating connections between people and nature in the built environment.[57]

It should also be noted that the Entertainment and Sports Programming Network ("ESPN") is the global leader in sports media, and headquartered in Bristol, CT.

It is this history of leadership and innovation in "clean energy" and "environmental infrastructure" that makes the Constitution State a special place from which to initiate and launch unique ideas that transform technology and society.

K. REFERENCES

In addition to the conversations with stakeholders, the Green Bank reviewed the following documents to support its findings and opportunities:

- **Green Plan** – Comprehensive Open Space Acquisition Strategy (2016-2020 Green Plan)
- **Going Outside in Connecticut** – Statewide Comprehensive Outdoor and Recreation Plan (SCORP) for 2017-2022

L. DEFINITIONS

The following are important definitions when it comes to "parks and recreation" in Connecticut:

- **Ecosystem Services** – there are four types of ecosystem services, including:
  - **Provisioning Services** – provide goods to people including food, water, and materials;
  - **Regulating Services** – refer to benefits gained by natural control of ecosystem processes (e.g., clean air, filter water, bacteria decompose waste, flood control);
  - **Cultural Services** – provide humans meaningful interaction with nature; and
  - **Supporting Services** – provide indirect benefits through provision of habitat, biodiversity, and support for all other ecosystem services.
- **Environmental Infrastructure** – means structures, facilities, systems, services and improvement projects related to (A) water, (B) waste and recycling, (C) climate adaptation and resiliency, (D) agriculture, (E) land conservation, (F) parks and recreation, and (G) environmental markets, including, but not limited to, carbon offsets and ecosystem services.
- **Greenway** (CGS 23-100) – means a corridor of open space that (1) may protect natural resources, preserve scenic landscapes and historical resources or offer opportunities for recreation or nonmotorized transportation, (2) may connect existing protected areas and provide access to the outdoors, (3) may be located along a defining natural feature, such as a

[57] https://environment.yale.edu/news/article/remembering-stephen-kellert-longtime-professor-of-social-ecology

waterway, along a man-made corridor, including an unused right-of-way, traditional trail routes or historic barge canals or (4) may be a greenspace along a highway or around a village.

- **Open Space Land** (CGS 12-107(b)(3))[58] – open space land means any area of land, including forest land, land designated as wetland under section 22a-30 and not excluding farm land, the preservation or restriction of the use of which would (A) maintain and enhance the conservation of natural or scenic resources, (B) protect natural streams or water supply, (C) promote conservation of soils, wetlands, beaches or tidal marshes, (D) enhance the value to the public of abutting or neighboring parks, forests, wildlife preserves, nature reservations or sanctuaries or other open spaces, (E) enhance public recreation opportunities, (F) preserve historic sites, or (G) promote orderly urban or suburban development.

- **Parks and Recreation** – parks and recreation are resources and services provided for the purposes of leisure, entertainment, and recreational pursuits. Resources may be public spaces and facilities like parks, nature preserves, open space areas, greenways, trails, and built structures for sport, recreation, or arts programs. Examples of services include recreation activity programs, athletic leagues, special events, arts programs, and environmental education programs. The field of parks and recreation also encompasses resources and services offered by sector, though they are only delivered to members or paying visitors. Examples include YMCAs, health and fitness centers, resorts, and guide services. There are also quasi-public providers like power companies, land trusts, and other authorities that manage resources that may be used for recreation purposes. An example in Connecticut is the MDC reservoir trail.[59]

- **Resilience** – means the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from deliberate attacks, accidents or naturally occurring threats or incidents, including, but not limited to, threats or incidents associated with the impacts of climate change.

- **Vulnerable Communities** – means populations that may be disproportionately impacted by the effects of climate change, including, but not limited to, (1) low and moderate income communities, (2) environmental justice communities pursuant to section 22a-20a, (3) communities eligible for community reinvestment pursuant to section 36a-30 and the Community Reinvestment Act of 1977, 12 USC 2901 et seq., as amended from time to time, (4) populations with increased risk and limited means to adapt to the effects of climate change, or (5) as further defined by the Department of Energy and Environmental Protection in consultation with community representatives.

[58] https://www.cga.ct.gov/current/pub/chap_203.htm#sec_12-107b

[59] As defined by the Connecticut Recreation and Parks Association

Comprehensive Plan

Green Bonds US

75 Charter Oak Ave., Suite 1 - 103, Hartford, CT 06106 > 860-563-0015 > ctgreenbank.com
700 Canal Street, 5th Floor, Stamford, CT 06902 greenlibertybonds.com

Comprehensive Plan

Fiscal Year 2020 & Beyond

July 2019

Revised July 2020

Revised January 2021

Revised July 2021

Revised January 2022

Table of Contents

1. Executive Summary

> *"The civilization of New England has been like a beacon lit upon a hill, which, after it has diffused its warmth around, tinges the distant horizon with its glow."*
>
> *Alexis de Tocqueville, Democracy in America*

Although Connecticut is one of the smallest states in the country, its decades of legislative leadership on climate change has had an influential impact across the country and around the world. One example of this was on July 1, 2011, when in a bipartisan manner, Public Act ("PA") 11-80[1] was passed. Within Section 99 of that seminal act, the nation's first state-level green bank was formed. There are now over twenty green banks (and growing) at the local and state level, including several nonprofits, working together to increase and accelerate the growth of investment in clean energy and environmental infrastructure across the United State.[2] The Connecticut Green Bank ("the Green Bank") is a public policy innovation, a catalyst that helps mobilize greater local and global investment to address climate change.

Since its inception, the Green Bank has mobilized over $2.1 billion of investment into Connecticut's clean energy economy at nearly a 8 to 1 leverage ratio of private to public funds, supported the creation of over 25,000 direct, indirect, and induced job-years, reduced the energy burden on nearly 57,000 families (in particular low-to-moderate income ("LMI") families) and businesses, deployed nearly 495 MW of clean energy that will help avoid over 10.6 million tons of CO_2 emissions and save over $302 million of public health costs over the life of the projects, and helped generate over $106 million in individual income, corporate, and sales tax revenues to the State of Connecticut.[3]

As a result of the Green Bank's success as an integral public policy tool addressing climate change in Connecticut, there has been growing national public policy interest at the local, federal,[4] and international[5] levels to realize similar results. This green bank movement is about increasing and accelerating the flow of private capital into markets that energize the green economy to confront climate change and provide all of society a healthier, more prosperous future. As the "spark" to the green bank movement, the Green Bank continues to be recognized for its innovation through receiving the prestigious 2017 Innovations in American Government Awards by the Ash Center at Harvard University's Kennedy School of Government,[6] Innovation

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[1] An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future.

[2] American Green Bank Consortium – www.greenbankconsortium.org

[3] Data collected and analyzed through the data warehouse through June 30, 2021

[4] In the 117th Congress, Senators Markey and Van Hollen introduced the National Climate Bank Act (S. 283), Representative Dingell introduced a counterpart Clean Energy & Sustainability Accelerator Act (H.R. 806), and President Biden included the Clean Energy & Sustainability Accelerator within the American Jobs Plan.

[5] Green Bank Network – https://greenbanknetwork.org/

[6] https://ash.harvard.edu/news/connecticut-green-bank-awarded-harvards-2017-innovations-american-government-award

and Green Bond Structure Awards by Environmental Finance in 2020, and Innovative Deal of the Year by Bond Buyer in 2020.

At home and abroad, there is agreement that accelerating the flow of capital into the green economy is one key to addressing the climate crisis. The Paris Agreement's third aim (beyond mitigation of greenhouse gas ("GHG") emissions and adaptation to climate change impacts) is making finance flows consistent with a pathway towards reduced emissions and increased climate resilient development. The Center for American Progress estimates that the U.S. needs at least $200 billion in renewable energy and energy efficiency investment a year for 20 years to reduce carbon emissions and avert climate disaster.[7] In a similar vein, the United Nations estimates that $90 trillion of investment is needed over the next 15 years to advance sustainable development and confront the worst effects of climate change.[8]

To put these numbers into perspective, this is the equivalent of between $620 to $800 of investment per person per year for the next 15 years, respectively – or the equivalent of nearly $3 billion a year of investment in Connecticut's green economy!

Faced with the magnitude of investment required to put society on a more sustainable path to confront climate change, the Green Bank convened a group of stakeholders at the Pocantico Conference Center of the Rockefeller Brothers Fund in February of 2019 for a two-day strategic retreat entitled "Connecticut Green Bank 2.0 – From 1 to 2 Orders of Magnitude". Having convened at the Pocantico Conference Center in November of 2011 to establish the Green Bank's first strategic plan (i.e., Green Bank 1.0), this new group of stakeholders met to reflect on the past seven years and then to envision an even bigger future for the Green Bank (i.e., Green Bank 2.0) consistent with the larger investment required.[9]

The retreat identified several key findings and recommendations for the Green Bank, including:

- **Commitment to Address Climate Change** – as the most urgent issue to address, the Green Bank needs to increase and accelerate the impact of its model to support the implementation of Connecticut's climate change plan,[10] including becoming more resilient to the impacts of climate change;[11]

- **Scaling Up Investment and Impact in Connecticut and Beyond** – in order to achieve the climate change goals set forth, more investment from private capital sources leveraged

[7] "Green Growth: A U.S. Program for Controlling Climate Change and Expanding Job Opportunities" by the Center for American Progress (September 2014).
[8] "Financing Sustainable Development: Moving from Momentum to Transformation in a Time of Turmoil" by the UNEP (September 2016).
[9] "Connecticut Green Bank 2.0 – From 1 to 2 Orders of Magnitude" at the Pocantico Conference Center of the Rockefeller Brothers Fund (February 6-7, 2019) – https://www.ctgreenbank.com/wp-content/uploads/2019/08/Green-Bank_Strategic-Retreat_Summary_February-2019.pdf
[10] "Building a Low Carbon Future for Connecticut – Achieving a 45% GHG Reduction by 2030" recommendations from the Governor's Council on Climate Change (December 18, 2018)
[11] Public Act 18-82 "An Act Concerning Climate Change Planning and Resiliency"

by innovative public sector financing will be needed to scale-up and scale-out the green bank model's impact; and

- **Green Bonds to Increase Access to Capital** – with the ability to issue bonds, the Green Bank is able to increase its access to capital beyond the current sources of funding to scale-up its investment activity, while providing more opportunities to engage citizens in new ways to invest in the state's growing green economy, including through the issuance of Green Liberty Bonds that will engage citizens in making investments alongside the Green Bank.[12]

Increasing and accelerating investment in the green economy by using limited public resources to attract and mobilize multiples of private capital investment is paramount to society's efforts to pursue sustainable development, while confronting climate change. More investment in the green economy creates more jobs in our communities, reduces the burden of energy costs on our families and businesses (especially the most vulnerable), reduces fossil fuel pollution that causes local public health problems and global climate change, and makes our communities more resilient to the impacts of climate change.

Investment for the sake of investment is not enough unless we have an engaged citizenry that is active in communities across the state! Whether through markets or within communities in partnership with other community-based organizations, the Green Bank is bringing people together and strengthening the bonds we share with one another. In order to confront climate change and provide all of society a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy, the Green Bank calls its Comprehensive Plan "Green Bonds US", to promote a simple but critically important message; green bonds us – the environment unites us.

As the cover to the Comprehensive Plan of the Green Bank suggests, by making investments in clean energy and environmental infrastructure more accessible and affordable to everyone – Green Bonds US – society will reap significant gains from moving forward in the same direction together – for we can't have environmentalism without humanitarianism.

2. Organizational Overview

The Green Bank[13] was established by Governor Malloy and Connecticut's General Assembly on July 1, 2011 through PA 11-80 as a quasi-public agency that supersedes the former Connecticut Clean Energy Fund ("CCEF"). On July 1, 2021, the 10th anniversary of the Green Bank, Governor Lamont and Connecticut's General Assembly enacted PA 21-115 expanding the scope of the Green Bank beyond "clean energy" to include "environmental infrastructure". As the nation's first

[12] In honor of the 50th anniversary of Earth Day, the Green Bank created the Green Liberty Bond – https://www.ctgreenbank.com/green-liberty-bond-new-investment-opportunity/

[13] PA 11-80 repurposed the Connecticut Clean Energy Fund (CCEF) administered by Connecticut Innovations, into a separate quasi-public organization called the Clean Energy Finance and Investment Authority (CEFIA). Per Public Act 14-94, CEFIA was renamed to the Connecticut Green Bank.

state green bank, the Green Bank leverages public and private funds to drive investment and scale-up clean energy deployment and environmental infrastructure improvement in Connecticut.

The Green Bank's statutory purposes are:

- To develop programs to finance and otherwise support clean energy and environmental infrastructure investment in residential, municipal, small business and larger commercial projects and such other programs as the Green Bank may determine;

- To support financing or other expenditures that promote investment in clean energy sources and environmental infrastructure to foster the growth, development and commercialization of clean energy sources, environmental infrastructure, and related enterprises; and

- To stimulate demand for clean energy and the deployment of clean energy sources and investment in environmental infrastructure within the state that serves end-use customers in the state.

The Green Bank's purposes are codified in Section 16-245n(d)(1) of the Connecticut General Statutes ("CGS") and restated in the Green Bank's Board approved Resolution of Purposes.

The Green Bank is a public policy innovation that exemplifies Connecticut's nearly two-decade history of bipartisan gubernatorial leadership on the issue of climate change. Other leadership highlights include:

- **Governor Rowland** – co-chaired the New England Governors and Eastern Canadian Premiers Conference, which established a regional commitment to reduce GHG emissions (i.e., 1990 levels by 2010, 10% below 1990 levels by 2020, and 80% below 2001 levels by 2050);[14]

- **Governor Rell** – supported Public Act 08-98[15] codifying the regional commitment into state law, appointing Gina McCarthy to be the Commissioner of the Department of Environmental Protection who would help lead the development of the Regional Greenhouse Gas Initiative ("RGGI") and later become the EPA Administrator under President Obama leading the development of the Clean Power Plan and the U.S. participation in the Paris Agreement and the White House National Climate Advisor under President Biden;

- **Governor Malloy** – led the passage of PA 11-80 establishing the Department of Energy and Environmental Protection ("DEEP"), creating the Green Bank, and other policies catalyzing the market for clean energy, as well as PA 18-50[16] and PA 18-82[17] increasing the state's renewable portfolio standard ("RPS") ("RPS") to 40% by 2030 and establishing

[14] NEG-ECP Resolution 26-4 adopting the "Climate Change Action Plan 2001" (August 2001 in Westbrook, CT)
[15] An Act Concerning Connecticut Global Warming Solutions
[16] An Act Concerning Connecticut's Energy Future
[17] An Act Concerning Climate Change Planning and Resiliency

a midterm GHG emissions reduction target of 45% below 2001 levels by 2030, respectively; and

- **Governor Lamont** – issued his first[18] and third[19] executive orders on state "lead by example" for sustainability and clean energy and climate change leadership respectively, including a 100% zero emission electricity target by 2040, and led the passage of PA 21-115 expanding the scope of the Green Bank to include "environmental infrastructure".

The Connecticut General Assembly has worked hand-in-hand with these Governors and the citizens of the state over the years to devise and support public policies that promote clean energy and lead the movement on climate change action.

2.1 Vision

...a planet protected by the love of humanity.

2.2 Mission

Confront climate change and provide all of society a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy.[20]

2.3 Goals

To achieve its vision and mission, the Green Bank has established the following three goals:

1. To leverage limited public resources to scale-up and mobilize private capital investment in the green economy of Connecticut.

2. To strengthen Connecticut's communities, especially vulnerable communities,[21] by making the benefits of the green economy inclusive and accessible to all individuals, families, and businesses.

3. To pursue investment strategies that advance market transformation in green investing while supporting the organization's pursuit of financial sustainability.

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[18] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-1.pdf

[19] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf

[20] Reducing greenhouse gas emissions and confronting climate change is supported by a number of public policies, including, but not limited to PA 17-3, PA 18-82, PA 19-71, Governor Lamont's Executive Orders 1 and 3, Comprehensive Energy Strategy, Governor Malloy's Council on Climate Change, and many other past acts, plans, or policies.

[21] Per PA 20-05, "An Act Concerning Emergency Response by Electric Distribution Companies, the Regulation of Other Public Utilities and Nexus Provisions for Certain Disaster-Related or Emergency-Related Work Performed in the State," "vulnerable communities" means populations that may be disproportionately impacted by the effects of climate change, including, but not limited to, low and moderate income communities, environmental justice communities pursuant to section 22a-20a, communities eligible for community reinvestment pursuant to section 36a-30 and the Community Reinvestment Act of 1977, 12 USC 2901 et seq., as amended from time to time, populations with increased risk and limited means to adapt to the effects of climate change, or as further defined by DEEP in consultation with community representatives. Inclusion of "vulnerable communities" within the goals of the Green Bank would ensure that its incentive (e.g., RSIP), financing (e.g., multifamily), and investment (e.g., Green Bank Capital Solutions) programs incorporate it as a priority.

The vision, mission, and goals support the implementation of Connecticut's clean energy policies be they statutorily required (e.g., CGS 16-245ff on Residential Solar Investment Program ("RSIP")), planning (e.g., Comprehensive Energy Strategy), or regulatory (e.g., Docket No. 17-12-03 on grid modernization) in nature.

2.4 Definitions – Clean Energy and Environmental Infrastructure

The Green Bank's investment focus is on "clean energy" and "environmental infrastructure" as defined by CGS Section 16-245n:

- **Clean Energy** – clean energy means solar photovoltaic energy, solar thermal, geothermal energy, wind, ocean thermal energy, wave or tidal energy, fuel cells, landfill gas, hydropower that meets the low-impact standards of the Low-Impact Hydropower Institute, hydrogen production and hydrogen conversion technologies, low emission advanced biomass conversion technologies, alternative fuels, used for electricity generation including ethanol, biodiesel or other fuel produced in Connecticut and derived from agricultural produce, food waste or waste vegetable oil, provided the Commissioner of Energy and Environmental Protection determines that such fuels provide net reductions in GHG emissions and fossil fuel consumption, usable electricity from combined heat and power systems with waste heat recovery systems, thermal storage systems, other energy resources and emerging technologies which have significant potential for commercialization and which do not involve the combustion of coal, petroleum or petroleum products, municipal solid waste or nuclear fission, financing of energy efficiency projects, projects that seek to deploy electric, electric hybrid, natural gas or alternative fuel vehicles and associated infrastructure, any related storage, distribution, manufacturing technologies or facilities and any Class I renewable energy source, as defined in section 16-1.

- **Environmental Infrastructure** – structures, facilities, systems, services and improvement projects related to (A) water, (B) waste and recycling, (C) climate adaptation and resiliency, (D) agriculture, (E) land conservation, (F) parks and recreation, and (G) environmental markets, including, but not limited to carbon offsets[22] and ecosystem services.[23]

3. Governance and Organizational Structure

The Green Bank is overseen by a governing Board of Directors ("BOD") comprised of ex officio and appointed members, while the organization of the Green Bank is administered by a professional staff overseeing three business units – Incentive Programs, Financing Programs, and Environmental Infrastructure Programs.

[22] Carbon offsets means an activity that compensates for the emission of carbon dioxide or other greenhouse gases by providing for an emission reduction elsewhere.

[23] Ecosystem services means benefits obtained from ecosystems, including, but not limited to, (A) provisioning services such as food and water, (B) regulating services such as floods, drought, land degradation and disease, and (C) supporting services such as soil formation and nutrient cycling.

3.1 Governance

Pursuant to Section 16-245n of the CGS, the powers of the Green Bank are vested in and exercised by a BOD [24] that is comprised of twelve voting and one non-voting members each with knowledge and expertise in matters related to the purpose of the organization – see Table 1.[25]

Table 1. Board of Directors of the Connecticut Green Bank

Position	Status	Appointer	Voting
State Treasurer (or designee)	Ex Officio	Ex Officio	Yes
Commissioner of DEEP (or designee)	Ex Officio	Ex Officio	Yes
Commissioner of DECD (or designee)	Ex Officio	Ex Officio	Yes
Secretary of OPM (or designee)	Ex Officio	Ex Officio	Yes
Residential or Low-Income Group	Appointed	Speaker of the House	Yes
Investment Fund Management	Appointed	Minority Leader of the House	Yes
Environmental Organization	Appointed	President Pro Tempore of the Senate	Yes
Finance or Deployment of Renewable Energy	Appointed	Minority Leader of the Senate	Yes
Finance of Renewable Energy	Appointed	Governor	Yes
Finance of Renewable Energy	Appointed	Governor	Yes
Labor	Appointed	Governor	Yes
R&D or Manufacturing	Appointed	Governor	Yes
President of the Green Bank	Ex Officio	Ex Officio	No

There are four (4) committees of the BOD of the Green Bank, including Audit, Compliance, and Governance Committee ("ACG Committee"), Budget, Operations, and Compensation Committee ("BOC Committee"), Deployment Committee, and the Joint Committee of the Energy Efficiency Board ("EEB") and the Green Bank.[26]

To support the Joint Committee of the EEB and the Green Bank, the following is a principal statement to guide its activities:

The EEB and the Green Bank have a shared goal to implement state energy policy throughout all sectors and populations of Connecticut with continuous innovation towards greater leveraging of ratepayer funds and a uniformly positive customer experience.

The BOD of the Green Bank is governed through enabling legislation, as well as by an Ethics Statement and Ethical Conduct Policy, Resolutions of Purposes, Bylaws, Joint Committee Bylaws, and a Comprehensive Plan. All meetings, agendas, and materials of the Green Bank's BOD and its Committees are publicly available on the organization's website.[27,28]

3.2 Organizational Structure

The organizational structure of the Green Bank is comprised of three (3) business units, including:

[24] https://www.ctgreenbank.com/about-us/governance/board-of-directors/
[25] https://www.ctgreenbank.com/about-us/governance/
[26] Pursuant to Section 16-245m(d)(2) of the CGS
[27] http://www.ctgreenbank.com/about-us/board-member-resources/connecticut-grboard-meetings/
[28] http://www.ctgreenbank.com/about-us/board-member-resources/connecticut-grittee-meetings/

- **Incentive Programs** – the Governor and the Connecticut General Assembly from time-to-time may decide that there are certain incentive (or grant) programs that they seek to have the Green Bank administer (e.g., CGS 16-245ff). The Green Bank administers such programs with the goal of delivering on the public policy objectives, while at the same time ensuring that funds invested by the Green Bank are cost recoverable. For example, the Green Bank administers the RSIP whereby through a declining incentive block structure no more than 350 MW of new residential solar PV systems are deployed, while nurturing the sustained, orderly development of a local state-based solar PV industry. Through the public policy creation of a Solar Home Renewable Energy Credit ("SHREC"), the Green Bank is able to recover its costs for administering the RSIP by selling such credits to the Electric Distribution Companies ("EDCs") through a Master Purchase Agreement ("MPA") to support their compliance under Connecticut Class I RPS. Costs recovered from such mechanisms (i.e., earned revenues from SHRECs) are expected to cover the incentive, administrative expenses, and financing expenses of the Incentive Programs business unit.

- **Financing Programs** – the Green Bank's core business is financing clean energy projects. The Green Bank's focus is to leverage limited public funds to attract and mobilize multiples of private capital investment to finance these projects. In other words, the use of resources by the Green Bank (e.g., public revenues including the Clean Energy Fund ("CEF") and RGGI allowance proceeds) are to be invested with the expectation of principal and interest being paid back over time (i.e., earned revenues). For example, the Green Bank administers the Commercial Property Assessed Clean Energy ("C-PACE") program. Through C-PACE, the Green Bank provides capital to building owners to make clean energy improvements on their properties that is paid back over time from a benefit assessment on the building owner's property tax bill. The interest earned from these types of investments, over time, is expected to cover the operational expenses and a return for the Financing Programs business unit.

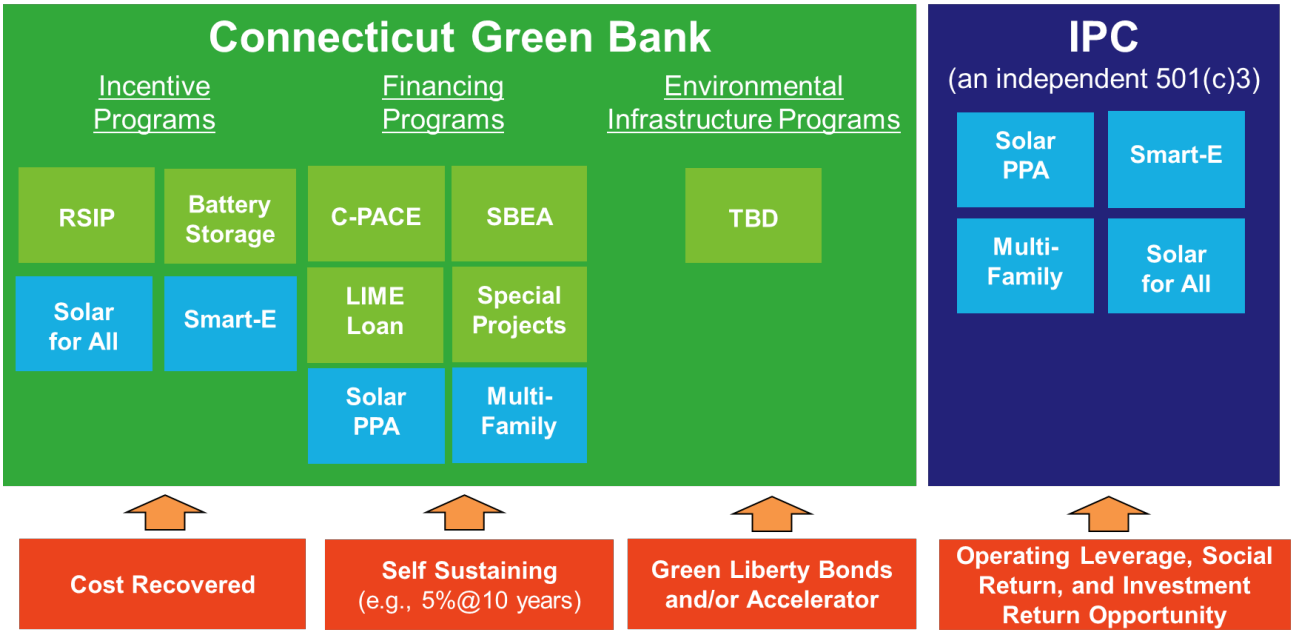
- **Environmental Infrastructure Programs** – as a result of the passage of PA 21-115 expanding the scope of the Green Bank beyond "clean energy" to include "environmental infrastructure," in FY22 the Green Bank will develop a Comprehensive Plan for the review and approval by the BOD for implementation in FY23.

These three business units – Incentive Programs and Financing Programs (i.e., for "clean energy") and Environmental Infrastructure Programs – serve the purposes of the Green Bank. To support the business units and their investments, the Green Bank has administrative support from finance, legal, marketing and operations.

An Employee Handbook and Operating Procedures have been approved by the BOD Directors and serve to guide the staff to ensure that it is following proper contracting, financial assistance, and other requirements.

In 2018, the Green Bank, in partnership with DEEP and the Kresge Foundation, formed a nonprofit organization called Inclusive Prosperity Capital ("IPC"). The mission of IPC is to attract mission-oriented investors in underserved clean energy market segments (e.g., LMI single and multifamily properties) of the green economy. Although not an affiliate, nor a component unit of the Green Bank, IPC serves an important role supporting the goals of Connecticut public policy by administering programs on behalf of the Green Bank. For an overview of the organizational structure of the Green Bank, and its partnership with IPC – see Figure 1.

Figure 1. Organizational Structure of the Green Bank with Support from Inclusive Prosperity Capital



4. Incentive Programs

The Green Bank manages incentive programs. That is to say that it oversees grant or subsidy program(s) (including credit enhancements – interest rate buydowns and loan loss reserves) used to deploy clean energy, while at the same time cost recovering the expenses associated with those programs within the business unit – including, but not limited to, incentives, administrative expenses, and financing expenses, as well as loan loss reserves on the balance sheet.

Per CGS 16-245ff, updated by PA 19-35[29], the Green Bank administers the RSIP that includes a declining incentive block structure to deploy no more than 350 megawatts of new residential solar PV systems on or before December 31, 2022, while promoting the sustained, orderly development of a local state-based solar PV industry. The RSIP also requires that participating households undergo a Home Energy Solutions ("HES") or Home Energy Solutions – Income Eligible ("HES-IE") assessment, or equivalent audit. It should be noted that the Green Bank has also strategically sought to ensure that households in vulnerable communities (e.g., low-and-

[29] An Act Concerning a Green Economy and Environmental Protection

moderate income households) have equal access to residential solar PV.[30] Through the Solar for All program, the Green Bank and its partners are enabling households to reach "solar parity" such that the proportion of solar PV installed on low-and-moderate income households is no less than non-low-and-moderate income households, or "beyond solar parity" for communities of color whereby Black and Hispanic households are proportionately installing solar PV more than White households.

As of June 30, 2021, 370.4megawatts of residential solar PV systems have been approved through RSIP, supporting 45,702 projects across the state and over $1.406 billion of investment.[31] Of these approved projects, 341.6 MW have been completed – or nearly 98 percent of the statutory target. Starting January 1, 2022, the residential solar PV market will transition from net metering to a tariff-based compensation structure.[32]

To support the Green Bank's implementation of the RSIP, the EDCs are required to purchase the SHRECs to assist them in their compliance with the RPS. The SHREC price is established by the Green Bank to recover its costs for administering the RSIP through a 15-year MPA with the EDCs. The cash flow from the sale of current and future SHRECs produced by these systems can be sold as a "green bond"[33] to generate cash flow upfront to support the cost recovery of the program – see Figure 2.

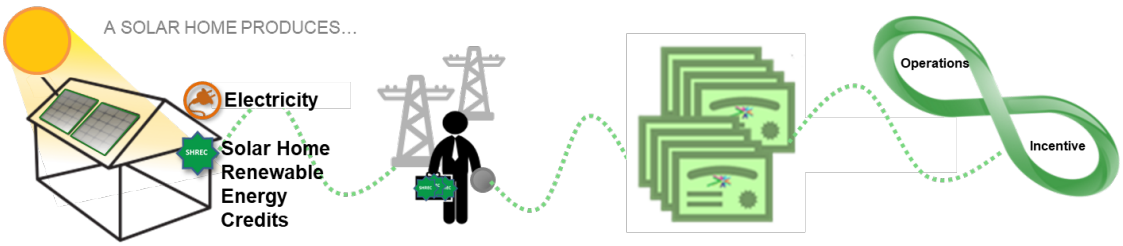
[30] Sharing Solar Benefits – Reaching Households in Underserved Communities of Color in Connecticut by the Connecticut Green Bank (May 2019) – click here.

[31] Prior to the RSIP, through incentives provided by the CCEF, the predecessor of the Green Bank, there are another 2,018 residential solar PV projects totaling 13.4 MW.

[32] See Docket No. 20-07-01

[33] https://www.ctgreenbank.com/cgb-enters-green-bond-market/

Figure 2. Incentive Program – Overview of the RSIP and the SHREC



When panels produce electricity for a home, they will also produce **Solar Home Renewable Energy Credits (SHRECs)**. The Green Bank provides upfront incentives through RSIP and collects all the SHRECs produced per statute.

Utilities required to enter into **15-year contracts with the Green Bank to purchase the stream of SHRECs produced**. This helps utilities comply with their clean energy goals (i.e., Class I RPS).

Green bonds are created from the 15-year SHREC revenues and **sold to institutional investors**

The Green Bank would then use the revenues from the 15-year fixed price contracts and green bonds to support the RSIP incentives (i.e., PBI and EPBB), cover admin costs, and financing costs (i.e., **business model that covers cost of the program**)

It should be noted that in FY 2020 and continuing into FY 2021, the COVID-19 public health crisis destabilized the local residential solar industry. As a result, in order to ensure that the Green Bank is "fostering the sustained orderly development of a local solar industry," the BOD of the Green Bank approved an extension of the RSIP (i.e., RSIP-E) by 32 MW to (1) ensure that 350 MW of residential solar PV is completed, and (2) provide additional incentive capacity to stabilize the industry as it manages through COVID-19 and the transition from net metering to a tariff.[34] This extension also provided the local solar industry an opportunity to engage the Connecticut General Assembly to debate the need for an increase in the 350 megawatt target. At the conclusion of the 2021 legislative session, there was no increase in the RSIP target.

In order to ensure the sustained, orderly development of the local solar industry beyond the conclusion of the RSIP, the Green Bank actively engaged in the regulatory process (i.e., Docket No. 20-07-01) overseen by the Public Utilities Regulatory Authority ("PURA") to establish the soon-to-be EDC-administered residential renewable energy tariff program under CGS 16-244z. As a result of this nearly yearlong process, through the Green Bank's engagement, the following key program designs were included:

- **Reasonable Rate of Return** – per CGS 16-244z, a just, reasonable, and adequate rate of return of between 9 to 11 percent was determined (i.e., equivalent to $0.2900/kWh in 2021) for the 20-year tariff through the Green Bank's inclusion of an objective analysis of the RSIP;

[34] https://www.ctgreenbank.com/about-us/governance/connecticut-grboard-meetings/2020-2/ - see September 23, 2020 materials for details.

- **HES or HES-IE Requirement** – to continue the linkage between energy efficiency and solar PV, an important objective of the Joint Committee, the Green Bank advocated for a HES or HES-IE requirement as part of every residential solar PV project supported by the tariff;

- **Additional Incentives for Vulnerable Communities** – given the success of the RSIP in reaching vulnerable communities, the Green Bank wanted to ensure that solar PV was affordable and accessible to LMI households and adders for low income (i.e., $0.0250/kWh) or households located in distressed municipalities[35] (i.e., $0.0125/kWh) over the 20-year tariff were determined; and

- **Direct Payment** – due to the perceived risks of underwriting financing (i.e., loans, leases, or power purchase agreements ("PPAs")) for vulnerable communities, the Green Back advocated for direct payments of the tariff rates from the EDCs to a third-party in-part or in-whole as a way to reduce risk and therefore make solar PV more affordable and accessible to vulnerable communities. This provides a financing mechanism that would allow the Green Bank to provide investment in developers serving vulnerable communities.

These key program design inclusions within the EDC-administered tariff program will improve the program's likelihood of success in deploying no less than fifty (50) megawatts of new residential solar PV a year, while ensuring that vulnerable communities have continued opportunities to reduce the burden of energy costs that they experienced through the RSIP.

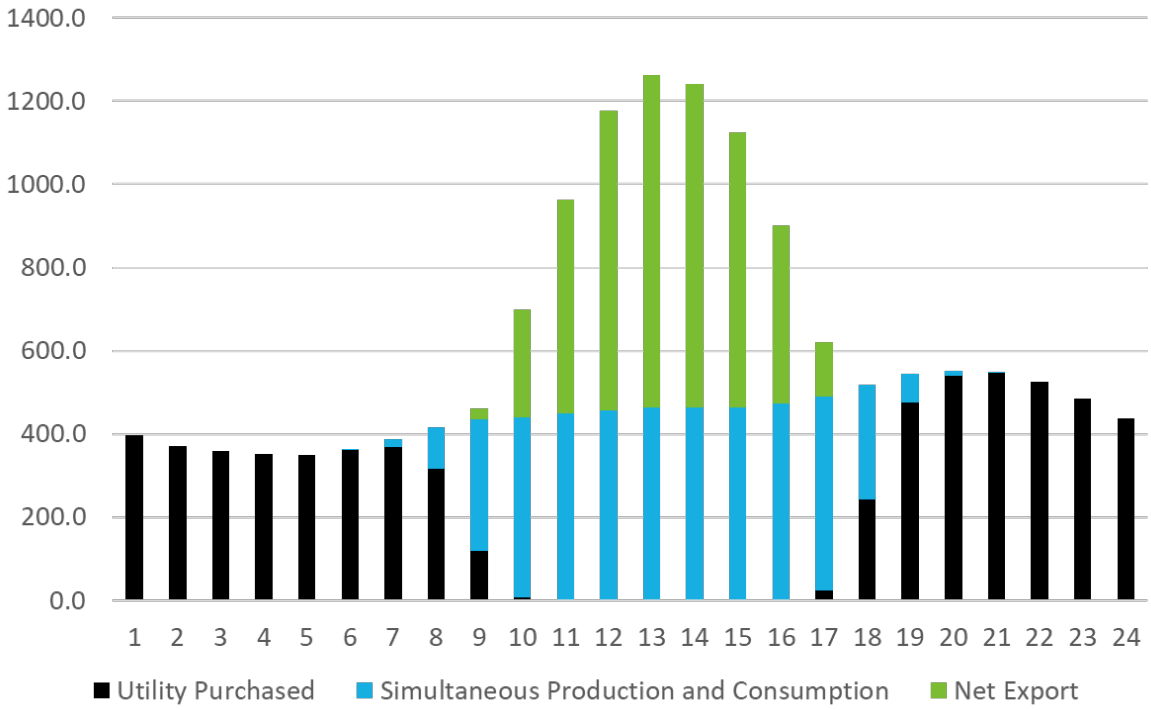
Beyond the SHRECs and RECs created through the RSIP and RSIP-E respectively, the Green Bank, through its partner C-Power, aggregates and registers residential solar PV systems in ISO-NE's On-Peak Hours Resource Program for which it receives Forward Capacity Market payments.[36]

In general, over the course of a year, a typical residential solar PV system produces, and the household simultaneously consumes, about fifty percent of the production from the system – meaning that about fifty percent of the system's production is being exported to the grid (and generally used subsequently by the household under the existing net metering policy) – see Figure 3. Beginning on January 1, 2022, all new behind the meter residential renewable energy systems will no longer be able to access net metering, but instead be subject to a tariff-based form of compensation (i.e., a credit for every kWh of energy produced from such systems over a 20-year period).

[35] https://portal.ct.gov/DECD/Content/About_DECD/Research-and-Publications/02_Review_Publications/Distressed-Municipalities

[36] https:///www.iso-ne.com/markets-operations/markets/forward-capacity-market

Figure 3. Average Residential Consumption (i.e., kWh) and Solar PV Production Over the Course of a Year by Hour of the Day



In order to store the system's production that would have been exported to the grid for the purposes of later using it for (1) back-up power that would benefit the household, and/or (2) reducing demand, specifically peak demand, that would benefit all ratepayers, in FY 2019, the Green Bank submitted an application into the Electric Efficiency Partners Program ("EEPP") (i.e., Docket No. 18-12-35) demonstrating the "cost effectiveness" of residential solar PV in combination with battery storage.[37] In FY 2021, the Green Bank submitted its "Solarize Storage" proposal into the Public Utility Regulatory Authority's ("PURA") Equitable Modern Grid process (i.e., Docket No. 17-12-03(RE03)),[38] an incentive program with a focus on combined residential solar PV and battery storage that maximizes participant benefits while sharing those benefits with ratepayers and society. This proposal was used by PURA within the Docket as a straw proposal from which a 580 MW residential and non-residential battery storage incentive program would be implemented. During the 2021 legislative session, PA 21-53 "An Act Concerning Energy Storage" was unanimously passed establishing a 1000 MW target by 2030, including residential and non-residential behind the meter installations and front of the meter grid tied solutions, and potential program implementers to include DEEP, Green Bank, EDCs, or other third parties. In collaboration with DEEP and the EDCs through the Joint Committee,[39] efforts are being made to enable residential solar PV in combination with battery storage to deliver greater benefits to participating households as well as all ratepayers on the electric grid – through a combination

[37] Section 94 of PA 07-242

[38] https://www.ctgreenbank.com/wp-content/uploads/2020/08/PURA-Docket-No.-17-12-03RE03-—Solarize-Storage-Proposal-from-the-Green-Bank.pdf

[39] Pursuant to Section 16-245m(d)(2) of the CGS

upfront incentive in support of passive demand response through the Green Bank in conjunction with a performance-based incentive in support of active demand response through the EDCs administration of the Connected Solutions Program. The Green Bank is now working with the EDCs to support PURA's recent interim decision within the docket.

The EnergizeCT Smart-E Loan in partnership with local community banks and credit unions, provides easy access to affordable capital for homeowners to finance clean energy, as well as environmental infrastructure improvements (e.g., health & safety, water, resiliency) on their properties through a partnership between local contractors and financial institutions, IPC, and the Green Bank. As the Green Bank provides credit enhancements to the Smart-E Loan in the form of interest rate buydowns (i.e., subsidy) and loan loss reserves from its balance sheet, it is considered an Incentive Program since there is no direct financial return (e.g., earned revenues) to the organization like Financing Programs.

The Green Bank has set targets for its Incentive Programs business unit for FY 2020,[40] FY 2021,[41] and FY 2022 in terms of the number of projects, total investment (i.e., public and private), and installed capacity – see Tables 2 through 4.

Table 2. Revised FY 2020 Targets for the Incentive Programs Business Unit

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)
Residential Solar Investment Program	7,059	$214.2	60,000
Solar for All Program	615	$17.2	4,200
Electric Efficiency Partners Program[42]	0-500	$0.0-$5.5	0-2,000
EnergizeCT Smart-E Loan	540	$7,2	500
Total[43]	**8,099**	**$226.9**	**62,500**

Table 3. Revised FY 2021 Targets for the Incentive Programs Business Unit

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)	Ann. GHG Emissions Avoided (TCO2)
Residential Solar Investment Program	3,177-4,706	$96.7-$143.2	27,000-40,000	16,995-25,178

[40] Revised by the BOD on January 24, 2020

[41] It should be noted that there are two factors impacting the FY 2021 targets for the RSIP – COVID-19 impacts on market demand and achieving the 350 MW target – and therefore, the low and high range for the targets.

[42] The Green Bank has submitted a Technology Application (i.e., Docket No. 18-12-35) into PURA through the EEPP in support of a residential battery storage incentive program that would retrofit existing residential solar PV systems installed through the RSIP. Beyond existing solar PV systems that could be retrofit with battery storage, RSIP Step 15 proposes a combined residential solar PV and battery storage upfront incentive for new installations that demonstrates significant "cost effectiveness" of distributed energy systems. Meeting this target was contingent upon PURA's determination in Docket No. 18-12-35. There was not yet a determination by PURA in the docket, and therefore the revision.

[43] The total does not count Solar for All projects separately because all Solar for All projects are also RSIP projects and therefore already counted.

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)	Ann. GHG Emissions Avoided (TCO2)
Solar for All Program	177-416	$4.3-$10.1	1,200-2,700	724-1,700
Equitable Modern Grid[44]	0-100	$0.0-$0.9	0-500	-
EnergizeCT Smart-E Loan	270-740	$3.6-$9.8	300-1,000	1,972-3,911
Total[45]	**3,447-5,581**	**$100.3-$153.0**	**27,300-41,500**	**19,691-30,789**

Table 4. Revised FY 2022 Targets for the Incentive Programs Business Unit

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)	Ann. GHG Emissions Avoided (TCO2)
Residential Solar Investment Program	1732	$63.0	16,800	29,605
Solar for All Program	96	$2.5	660	1,154
Energy Storage Solutions	202	$5.8	2,500	-
EnergizeCT Smart-E Loan	800	$11.2	800	15,168
Total[46]	**1,633**	**$36.6**	**9,800**	**22,217**

Starting in FY 2021, the Green Bank has added annual GHG emissions avoided (see Tables 3 and 4) and investment in vulnerable communities (see bullet below) as targets for its Incentive Programs.

- By 2025, no less than 40 percent of investment and benefits (e.g., jobs) from Incentive Programs is directed to vulnerable communities.

As a result of successfully achieving these targets, the Green Bank will reduce the energy burden on and improve the resiliency from climate change for Connecticut families, especially those in vulnerable communities, create jobs in our communities, raise tax revenues for the State of Connecticut, and reduce air pollution causing local public health problems and contributing to global climate change.

5. Financing Programs

The Green Bank manages financing programs. That is to say that it oversees financing programs that provide capital upfront (i.e., public revenues including CEF and RGGI) to deploy clean energy, while at the same time returning principal and interest (i.e., earned revenues) over time from the

[44] The Green Bank will be submitting a proposal into Docket No. 17-12-03(RE03) – Electric Storage. Should the Request for Proposed Designs ("RFPD") be accepted by PURA, then the Green Bank would anticipate administering an upfront electric storage incentive program beginning January 1, 2021.

[45] The total does not count Solar for All projects separately because all Solar for All projects are also RSIP projects and therefore already counted.

[46] The total does not count Solar for All projects separately because all Solar for All projects are also RSIP projects and therefore already counted.

financing of projects, products, or programs to ensure the financial sustainability of the business unit.

The Green Bank has a number of clean energy financing products, including:

- **C-PACE**[47] – enables building owners to pay for clean energy improvements over time through a voluntary benefit assessment on their property tax bills. This process makes it easier for building owners to secure low-interest capital for up to 25 years to fund energy improvements and is structured so that energy savings more than offset the benefit assessment.

- **Green Bank Solar PPA** – third-party ownership structure to deploy solar PV systems for commercial scale end-use customers (e.g., businesses, nonprofits, municipal and state governments, affordable multifamily properties, etc.) that uses a multi-year PPAs ")to finance projects while reducing energy costs for the host customer.

- **Small Business Energy Advantage ("SBEA")** – Eversource Energy administered on-bill commercial energy efficiency loan program for small businesses, in partnership with low-cost capital provided by Amalgamated Bank with a credit enhancement from the Green Bank (i.e., subordinated debt) and the Connecticut Energy Efficiency Fund (i.e., loan loss guaranty and interest rate buydown).

- **Multifamily Products** – defined as buildings with 5 or more units, the Green Bank provides a suite of financing options through IPC and Capital for Change (a Community Development Financial Institution or "CDFI") that support property owners to assess, design, fund, and monitor high impact clean energy and health & safety improvements for their properties.

- **Special Projects** – as opportunities present themselves, the Green Bank from time-to-time invests as part of a capital structure in various projects (e.g., fuel cell, hydropower, food waste to energy, state "Lead by Example" energy service agreements, etc.). These projects are selected based on the opportunity to expand the organization's experience with specific technologies, advance economic development in a specific locale, or to drive adoption of clean energy that would otherwise not occur, while also earning a rate of return.

The Green Bank has set targets for its Financing Programs business unit for FY 2020,[48] FY 2021,[49] and FY 2022 in terms of the number of projects, total investment (i.e., public and private), and installed capacity – see Tables 5 through 7.

[47] CGS 16a-40g
[48] Revised by the BOD on January 24, 2020
[49] Given the uncertain impacts of COVID-19, low and high range targets were proposed.

Table 5. Revised FY 2020 Targets for the Financing Programs Business Unit

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)
Commercial PACE	56	$25.0	7,000
Green Bank Solar PPA	33	$28.0	12,600
Small Business Energy Advantage[50]	1,000	$20.0	-
Multifamily Predevelopment Loan	2	$0.1	-
Multifamily Term Loan	8	$1.3	200
Multifamily Catalyst Loan	2	$0.1	-
Strategic Investments	2	$7.5	-
Total	1,718	$99.2	24,000

Table 6. Revised FY 2021 Targets for the Financing Programs Business Unit

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)	Ann. GHG Emissions Avoided (TCO2)
Commercial PACE	33-48	$15.2-$23.3	5,300-7,100	1,452-1,641
Green Bank Solar PPA	30-58	$4.0-$6.8	6,200-15,400	3,400-9,668
Small Business Energy Advantage	1,203	$20.4	-	-
Multifamily Predevelopment Loan	1	$0.1	-	-
Multifamily Term Loan	2	$0.2	0.1	68
Multifamily Health & Safety	1	$0.1	-	-
EV Offset Program	-	-	-	17,770
Strategic Investments	3	$7.8	-	-
Total	1,267-1,273	$46.1-$69.2	10,900-20,700	6,800-13,100

Table 7. Revised FY 2022 Targets for the Financing Programs Business Unit

Program / Product	Projects	Total Investment ($MM's)	Installed Capacity (kW)	Ann. GHG Emissions Avoided (TCO2)
Commercial PACE	30	$22.8	6,300	11,172
Green Bank Solar PPA	37	$17.7	11,000	18,503
Small Business Energy Advantage	614	$9.3	-	83,709
Multifamily Term Loan	2	$0.3	200	282
Multifamily Health & Safety	1	$0.6	-	-
EV Offset Program	-	-	-	16,500
Strategic Investments	-	-	-	-
Total	679	$49.0	16,500	129,285

[50] In partnership with Eversource Energy and Amalgamated Bank, the Green Bank provides capital in support of the utility-administered SBEA program to provide 0% on-bill financing up to 4-years for energy efficiency projects.

Starting in FY 2021, the Green Bank has added annual GHG emissions avoided (see Tables 6 and 7) and investment in vulnerable communities (see bullet below) as targets for its Financing Programs.

- By 2025, no less than 40 percent of investment and benefits (e.g., jobs) from Financing Programs is directed to vulnerable communities.

The capital provided by the Green Bank, which is a portion of the total investment, is expected to yield a return commensurate with the financial sustainability objectives of the organization and business unit.

As a result of successfully achieving these targets, the Green Bank will contribute to its financial sustainability, while also reducing the energy burden on and improve the resiliency from climate change for Connecticut families and businesses, especially those in vulnerable communities, create jobs in our communities, raise tax revenues for the State of Connecticut, and reduce air pollution that cause local public health problems and global climate change.

6. Environmental Infrastructure Programs

The Green Bank is developing environmental infrastructure programs. That is to say that the Green Bank will utilize its financing tools, in close cooperation with the DEEP, to mobilize private investment in the modernization and decarbonization of environmental infrastructure, making it more resilient to the impacts of climate change. With the passage of PA 21-115, the scope of the Green Bank has broadened from "clean energy" to now include "environmental infrastructure". As required by statute, the Green Bank must first develop a Comprehensive Plan in order to be able to expend resources to foster its growth, development, and commercialization. In FY 2022, the Green Bank will develop such plan.

The policy supports environmental infrastructure in the following ways:

- **Governance** – establishes an ex officio position on the BOD for the Secretary of the Office of Policy and Management ("OPM") (or their designee);

- **Environmental Infrastructure Fund** ("EIF") – establishes an EIF which may receive funds, including federal funds, that are available for environmental infrastructure investments;[51]

- **Bonding** – allows the Green Bank to issue bonds for up to 25 years for "clean energy" and 50 years for "environmental infrastructure" projects or the useful life of the measure, whichever is less;

[51] Such funds shall not include ratepayer (e.g., CEF) or RGGI funds, or funds associated with the Clean Water Fund or such funds collected from a water company.

- **Special Capital Reserve Fund** ("SCRF") – increases the Green Bank's access to the SCRF from $100 MM to $250 MM;[52] and

- **Reporting** – increases reporting to committees of cognizance within the Connecticut General Assembly from energy and commerce, to now include environment and banking.

For FY 2022, the Green Bank's budget includes resources to support the development of a Comprehensive Plan, and hiring of a Director of Environmental Infrastructure Programs. To immediately support private investment in environmental infrastructure, the Green Bank will expand its Smart-E Loan Program with local community banks and credit unions to provide borrowers with the ability to finance environmental infrastructure projects (e.g., health & safety, wells for water, greenhouses) on their homes.[53] In FY 2023, after the completion, review, and approval of a Comprehensive Plan, the Green Bank will implement an environmental infrastructure program.

7. Impact Investment

The Green Bank pursues investment strategies that advance market transformation in green investing while supporting the organization's pursuit of financial sustainability. With the mission to confront climate change and provide all of society a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy, the Green Bank leverages limited public resources to scale-up and mobilize private capital investment in the green economy of Connecticut.

7.1 State Funds

The Green Bank receives public capital from a number of ratepayer and state sources (i.e., public revenues) that it leverages to scale-up and mobilize private capital investment in the green economy of Connecticut.

System Benefit Charge – CEF

As its primary source of public revenues, the Green Bank through CGS 16-245n(b) receives a 1 mill per kilowatt-hour surcharge called the CEF from ratepayers of Eversource Energy and Avangrid. The CEF has been in existence since Connecticut deregulated its electric industry in the late 1990s.[54][55] On average, households contribute between $7-$10 a year for the CEF, which the Green Bank leverages to attract multiples of private capital investment in the green economy of Connecticut through its Financing Programs.

Regional Greenhouse Gas Emission Allowance Proceeds

[52] SCRF will only be allowed for up to 25 years for "clean energy" and "environmental infrastructure"

[53] Through a second loan loss reserve, the Green Bank currently provides local community banks and credit unions with a credit enhancement to provide low-cost and long-term unsecured loans for clean energy improvements to their homes.

[54] PA 98-28 "An Act Concerning Electric Restructuring"

[55] The Clean Energy Fund should not be mistaken with the Conservation Adjustment Mechanism (or the Conservation and Loan Management Fund), which is administered by the EDCs

As a secondary source of public revenues, the Green Bank receives a portion (i.e., 23%) of Connecticut's RGGI allowance proceeds through the Regulation of Connecticut State Agencies Section 22a-174(f)(6)(B). The Green Bank invests RGGI proceeds from the nation's first cap-and-trade program to finance clean energy improvements (i.e., renewable energy projects) through its Financing Programs.

7.2 Federal Funds

The Green Bank receives public capital through a number of past, current, and future sources[56] of federal funds as well that it leverages to scale-up and mobilize private capital investment in the green economy of Connecticut.

American Recovery and Reinvestment Act

Through the American Recovery and Reinvestment Act ("ARRA") the CCEF received $20 million for its programs and initiatives. After nearly $12 million of those funds were invested as grants, the Green Bank invested the remaining $8.2 million in financing programs. With $2.2 million of ARRA funds left,[57] the Green Bank invested over $6 million of ARRA funds to attract and mobilize more than $169 million of public and private investment in residential clean energy financing programs.

United States Department of Agriculture

The Green Bank has applied to the United States Department of Agriculture ("USDA") to seek access to low-cost and long-term federal loan funds for the deployment of clean energy in rural communities.[58] The USDA has vast lending authority under the Rural Electrification Act of 1936, which enables direct loans, project financing and loan guarantees to a variety of borrowers.

Clean Energy & Sustainability Accelerator

Modelled after the Green Bank, the Clean Energy & Sustainability Accelerator ("Accelerator") is a public policy introduced by Congress (i.e., funding levels between $20B to $100B) and included as part of the American Jobs Plan (i.e., funding level of $27B) by President Biden to create a national independent 501(c)3 nonprofit green bank. With growing bipartisan support, the creation of an Accelerator would provide the Green Bank with access to federal resources to mobilize private investment in "clean energy" and "environmental infrastructure" projects.

7.3 Green Bonds

The future of green bonds is growing. Globally, in 2020, countries, companies, and local governments sold $305.1 billion (2019: $269.4 billion) of green bonds that fund projects that are good for the environment.[59] In July of 2019, Connecticut Treasurer Shawn Wooden announced that the Clean Water Fund's Green Bond Sale shattered state records. The AAA-rated green bond had a record low interest rate of 2.69% and received retail investor orders topping $240

[56] There have been ongoing public policy proposals at the national level that the Connecticut Green Bank has been a part of to create a US Green Bank. If such a public policy were passed, then the Connecticut Green Bank would have access to significant federal funds to leverage to scale-up and mobilize private capital investment in the green economy of Connecticut.

[57] As of July 1, 2021

[58] "Rural" communities are defined by a population bound and the various limits depend on the program; at the broadest, "rural" may be considered a town that has a population not greater than 50,000 people. Despite its positioning in a mostly-developed corridor, we estimate Connecticut would have 69% of towns eligible at the 20,000-person limit and 89% of towns at the 50,000-person limit.

[59] Bloomberg News (James Crombie, January 8, 2021)

million in one day! This is the highest level of retail investor orders (i.e., from Separately Managed Accounts ("SMAs") or individuals) in the 20-year history of this program – with the balance of the bonds offered to institutional investors generating an additional $128 million in orders. In April 2019, the Green Bank issued $38.6 million in green asset backed securities – its first rated debt issuance and the first ever solar asset-backed security (ABS) transaction by a green bank. The issuance was certified by Kestrel Verifiers and independently assessed by Climate Action Reserve. It was honored by Environmental Finance with the Innovation and Green Bond Structure awards in 2020. In July 2020, the Green Bank issued $16.8 million in a SCRF backed Green Liberty Bond that was Climate Bond Certified. The Green Liberty Bond was recognized by The Bond Buyer with the Innovative Deal of the Year award in 2020. And in April 2021, the Green Bank sold out $25 million in Green Liberty Bonds drawing four times as much demand as could be fulfilled from retain investors in Connecticut and across the U.S., as well as institutional investors interested in sustainability investments.

Green Banks have an essential role in leveraging limited public funds with private capital to drive investment in the green economy to achieve climate change goals, create jobs in our communities, and reduce the burden of energy costs on our families and businesses. CGS Section 16-245n(d)(1)(C) is the enabling statute that allows the Green Bank to issue revenue bonds for up to 25 years for clean energy and 50 years for environmental infrastructure projects to support its purposes. Green Bonds are bonds whose proceeds are used for projects or activities with environmental or climate benefits, most usually climate change mitigation and adaptation.

Connecticut's climate change plan[60] focuses on three mitigation wedges (see Figure 4), including:

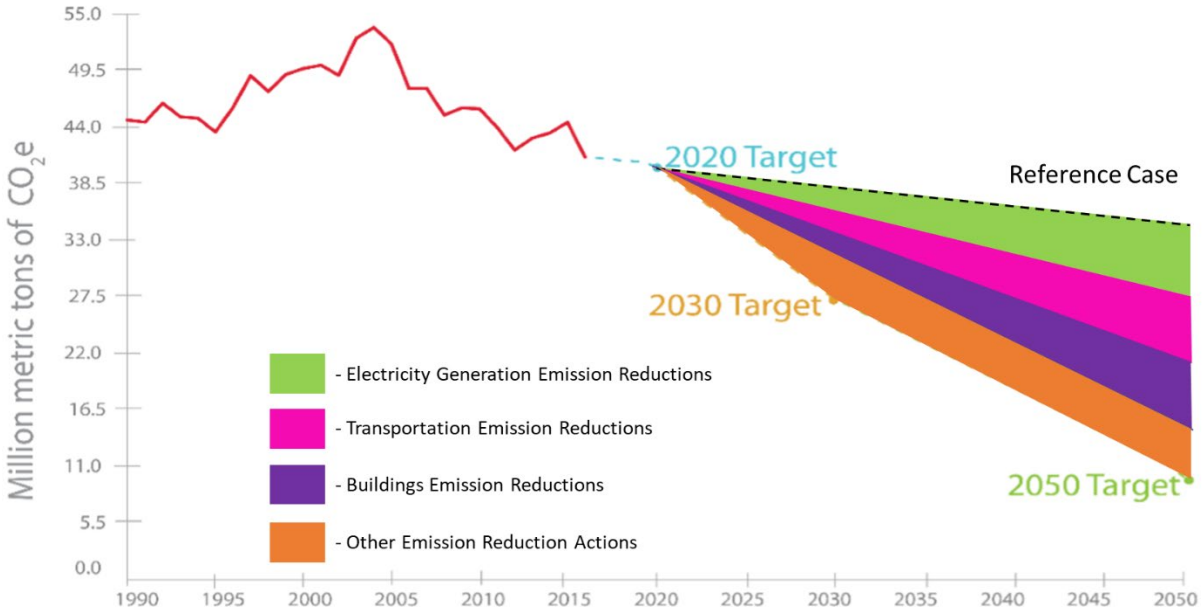
- **Decarbonizing Electricity Generation** – representing 23% of Connecticut's economy-wide GHG emissions, electricity generation must be transitioned to zero-carbon renewable energy sources. Strategies include financing for in-state or regional utility-scale renewable energy resources (e.g., community solar, wind, run-of-the-river hydro, food-waste-to-energy, etc.) and financing and incentives for in-state distributed energy resources (e.g., behind the meter solar PV, battery storage, fuel cells, combined heat and power, etc.) that assist with the implementation of the Class I and III RPS, RGGI, and other public policies. To ensure a sustainable downward trajectory to meet the State's 2050 target, electricity generation must be 66% and 84% carbon-free by 2030 and 2050, respectively.
- **Decarbonizing Transportation** – representing over 35% of Connecticut's economy-wide GHG emissions, the transportation sector is the largest source of statewide emissions and must be transitioned to zero- and low-carbon technologies. Strategies for zero- and low-carbon transportation include adopting innovative financing models for zero emission vehicles ("ZEV") deployment (i.e., EVs and fuel cell electric vehicles ("FCEVs")) and ZEV charging infrastructure, ensuring equitable access to clean transportation options such as

[60] "Building a Low Carbon Future for Connecticut – Achieving a 45% GHG Reduction by 2030" recommendations from the Governor's Council on Climate Change (December 18, 2018)

electric bus fleets and ride sharing or hailing services. Also important is supporting voluntary (e.g., carbon offset) and regulatory (e.g., Transportation Climate Initiative) markets for cleaner transportation that transitions us away from fossil fuel to renewable energy. More specifically, to meet the 2030 target, 20% of the passenger fleet and 30% of the heavy-duty fleet must be zero emission; and to meet the 2050 target, 95% of the passenger fleet and 80% of the heavy-duty fleet must be zero emission.

- **Decarbonizing Buildings** – representing over 30% of Connecticut's economy-wide GHG emissions, residential, commercial, and industrial buildings are the second largest emitting sector that must transition away from fossil fuels to renewable thermal technology. Strategies for zero-carbon buildings include financing and incentives for energy efficiency (e.g., thermal insulation, appliances, etc.) and renewable heating and cooling (e.g., air source heat pumps, ground source heat pumps, heat pump water heaters, etc.). To meet the economy-wide 2030 and 2050 targets for Buildings, renewable heating and cooling technologies must be significantly deployed to 11% and 26% for residential, and 9% and 20% for commercial, by 2030 and 2050 respectively.

Figure 4. Example of Key GHG Emission Reduction Measures (i.e., Mitigation Wedges) for Connecticut to Achieve Targets



The size of investment required and long-term revenue streams from clean energy, lend themselves well to bond structures. Issuing green bonds can provide the Green Bank a lower-cost, longer-term source of capital, enabling the Green Bank to further leverage state and federal funds to increase its impact in Connecticut by attracting and mobilizing private investment in the state's green economy. The Green Bank has an important role to play in advancing green bonds in the U.S., especially given its history of engaging citizens and communities and its expertise in developing impact methodologies and a thorough and transparent reporting framework.

8. Citizen Engagement

The Green Bank, and its predecessor the CCEF, have a long-standing history of citizen engagement within the communities of Connecticut. In 2002, the CCEF partnered with six private foundations[61] to co-found SmartPower – which launched the 20 percent by 2010 campaign and led the administration of the CCEF's EPA award-winning Connecticut Clean Energy Communities Program.[62] Then in 2013, the Green Bank launched a series of Solarize campaigns in communities across the state in partnership with SmartPower and the Yale Center for Business and the Environment,[63] while also advancing the SunShot Initiative of the U.S. Department of Energy ("USDOE") in partnership with the Clean Energy States Alliance through projects that reduce soft-costs for solar PV (i.e., customer acquisition, permitting, and financing) and provide better access to solar PV for LMI households.

Engaging citizens has been in the DNA of the Green Bank since its inception.

7.1 Green Bonds US

From the air we breathe to the products we consume; the world's population is inescapably connected. And while that may present challenges in the context of global climate change, it also affords incredible opportunities for collaboration and progress.

Whether through markets or within communities, the Green Bank is bringing people together and strengthening the bonds we share with one another. As the name of the Comprehensive Plan suggests – "Green Bonds US" seeks to promote a simple but critically important message; green brings us together, green bonds us, the environment unites us. The simple slogan combines the financial tool of green bonds that are being sold to retail investors across the United States with a unifying message that humanity and the environment are inextricably linked.

Green Liberty Bonds

Despite the rising demand for clean energy in the state, barriers still exist that may prevent more people from participating in Connecticut's growing green economy. For example, a homeowner who, despite having a strong desire to "go solar", is not able to because of factors like price, siting, or other issues. To allow more people to benefit from, and invest in, clean energy and environmental infrastructure, the Green Bank is offering another way. For the first time in its history, the Green Bank has issued "mini" green-bonds (e.g., small denomination bonds, certificate of deposits, and/or other fixed income investments) called Green Liberty Bonds, for sale to institutions and retail investors (i.e., SMAs and individuals). Green Liberty Bonds have three features:

[61] Emily Hall Tremaine Foundation, The John Merck Fund, Pew Charitable Trust, The Oak Foundation, Rockefeller Brothers Fund, and Surdna Foundation

[62] "Climate Policy and Voluntary Initiatives: An Evaluation of the Connecticut Clean Energy Communities Program," by Matthew Kotchen for the National Bureau of Economic Research (Working Paper 16117).

[63] "Solarize Your Community: An Evidence-Based Guide for Accelerating the Adoption of Residential Solar" by the Yale Center for Business and the Environment.

1. **Use of Proceeds** – funds raised from the bonds must go towards projects that support the Paris Agreement (i.e., mitigation of GHG emissions or adaptation to the impacts of climate change);

2. **Retail Accessible** – like the Series-E War Bonds of the 1940's, bonds must be small denomination (i.e., less than $1,000) and available to everyday retail investors; and

3. **Independently Certified and Verified** – due to the expectation by retail investors that the use of proceeds will go towards projects that support the Paris Agreement, the bonds must be independently certified and verified as green.

With these three features within a bond, any green bond can be a Green Liberty Bond.

In March and December of 2020, the Green Bank's bonds were awarded for innovation and green bond structure by Environmental Finance and The Bond Buyer, respectively.

For more information on Green Liberty Bonds, visit www.greenlibertybonds.com

Market Research

To gauge the public's interest and assess market demand for Green Liberty Bonds, the Green Bank performed primary and secondary research such as an online survey, interviews with industry professionals, as well as internal review of recent market data and investment reports.

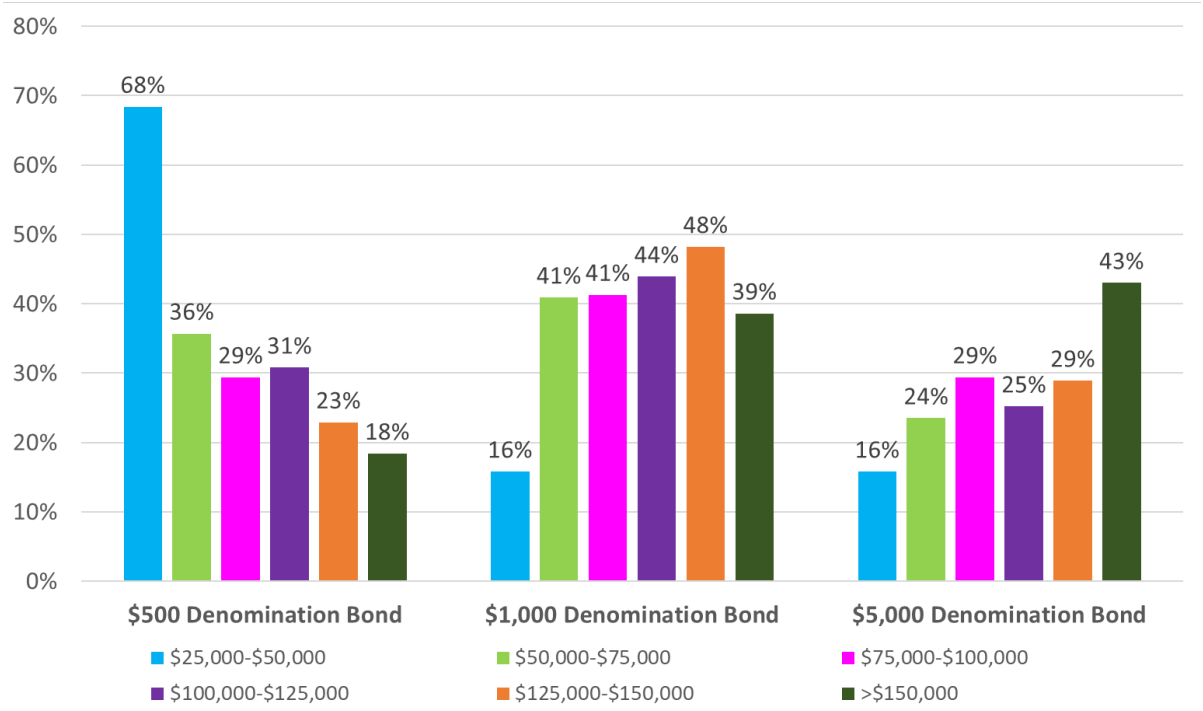
In June of 2019, the Green Bank engaged GreatBlue Research to conduct primary research throughout Connecticut, measuring the market potential for "mini-bonds". A digital survey was sent to two target audiences: 1.) households that have installed solar PV through the RSIP and 2.) the general population (i.e., households that haven't participated in a Green Bank program). When asked "what types of green projects would you support through your private investments," the survey participants had the following responses:

- Recycling and waste reduction – 69.5%
- Clean water – 67.3%
- Roof-top solar – 64.5%
- High efficiency heating and cooling systems – 58.8%
- Home energy efficiency projects – 56.7%
- Land conservation – 49.3%
- Energy efficiency appliance rebates – 45.6%
- Electric vehicles ("EV's) – 41.2%

The Green Bank and GreatBlue research also highlighted that the income of the investor, alongside the denomination of the bond, represents an opportunity for increasing equitable access to greater investment in the environment – see Figure 5.

After taking into account the results of our state-wide primary research, current national trends and conversations with various industry experts, there is sufficient data to suggest that the green bond market for individual investors in Connecticut may be quite large. As a result, the Green Bank intends to continue to issue Green Liberty Bonds, with proceeds going to support the development of "clean energy" and "environmental infrastructure" projects within Connecticut.

Figure 5. Comparison of Interest in Bond Denomination Value by Income of Survey Respondents



The Green Bank expects to continue to conduct survey research on retail green bond investors from Connecticut and across the country to assess their interest in investing in "clean energy" and "environmental infrastructure" projects.

7.2 Sustainable CT

Sustainable CT and the Green Bank are developing engagement and investment platforms to raise capital in support of local projects that provide individuals, families, and businesses with investment opportunities to make an impact on sustainability in their communities. The partnership between Sustainable CT and the Green Bank is focused on the following key priorities:

- Driving investment in projects in our communities, with a goal to accelerate over time;
- Community-level engagement, from project origination through financing, that is inclusive, diverse, and "knitted";
- Creating a structure that harnesses all types of capital for impact – from donations to investment;
- Developing a business model that covers the cost of the program; and

- Creating a measurable impact, both qualitative and quantitative.

Through a partnership between Sustainable CT and Patronicity, an online crowdfunding platform will enable citizen leaders to have access to financial resources (i.e., grants) that they need to support local sustainability projects.

For more information on Sustainable CT, visit www.sustainablect.com

9. Evaluation Framework and Impact Methodologies

The Green Bank's evaluation efforts seek to understand how the increase in investment and deployment of clean energy and environmental infrastructure supported through the Green Bank, result in benefits to society. To that end, the Green Bank has devised an Evaluation Framework and impact methodologies for various societal benefits.

9.1 Evaluation Framework

The Green Bank has established an Evaluation Framework to guide the assessment, monitoring and reporting of the program impacts and processes, including, but not limited to energy savings and clean energy production and the resulting societal impacts or benefits arising from clean energy investment.[64] This framework focuses primarily on assessing the market transformation the Green Bank is enabling, including:

- **Supply of Capital** – including affordable interest rates, longer term maturity options, improved underwriting standards, etc.
- **Consumer Demand** – increasing the number of projects, increasing the comprehensiveness of projects, etc.
- **Financing Performance Data and Risk Profile** – making data publicly available to reduce perceived technology risks by current or potential private investors.
- **Societal Impact** – the benefits society receives from more investment and deployment of clean energy.

With the goal of pursuing investment strategies that advance market transformation in green investing, the Green Bank's evaluation framework provides the foundation for determining the impact it is supporting in Connecticut and beyond across the four (4) "E's" (i.e., E^4) – including Economy, Environment, Energy, and Equity.

9.2 Green Bond Framework

The Green Bank's Green Bond Framework ("Framework") [65] provides a structure in which the Green Bank can more efficiently and effectively support its efforts to raise capital and deploy more clean energy and environmental infrastructure through the issuance of green bonds.

[64] https://ctgreenbank.com/wp-content/uploads/2017/02/CTGreenBank-Evaluation-Framework-July-2016.pdf
[65] https://ctgreenbank.com/wp-content/uploads/2020/04/CGB_Green-Bond-Framework_final-4-22-2020.pdf

Connecticut has been at the forefront of state-level efforts to combat the threat of global climate change. In order to increase investment to meet the 10x goals identified by the United Nations as the level needed to advance sustainability and hold off the worst effects of climate change, the Green Bank will use its statutory authority (i.e., CGS 16-245kk) to issue bonds, including green bonds. These are key to sourcing capital for clean energy and environmental infrastructure projects and providing a way for all residents, businesses, and institutions of Connecticut to invest in growing our green economy.

The Framework sets out how the Green Bank proposes to use its Master Trust Indenture ("MTI") in a manner consistent with its purpose and provide the transparency and disclosures investors require to make investment decisions through green bonds. This Framework is specifically intended for the MTI approved and adopted April 22, 2020, which establishes the purposes for which the Green Bank may issue green bonds or other public debt. The Framework is established in accordance with the Climate Bonds Initiative ("CBI") Standard and adheres to the Green Bond Principles issued by the International Capital Market Association.

9.3 Impact Methodologies

To support the implementation of the Evaluation Framework, the Green Bank, working with various public sector organizations, has developed methodologies that estimate the impact from the investment, installation and operation of clean energy projects, including:

- **Jobs** – working in consultation with the Connecticut Department of Economic and Community Development ("DECD"), through the work of Navigant Consulting, the Green Bank devised a methodology that takes investment in clean energy to reasonably estimate the direct, indirect, and induced job-years resulting from clean energy deployment.[66]
- **Tax Revenues** – working in consultation with the Connecticut Department of Revenue Services ("DRS"), through the work of Navigant Consulting, the Green Bank devised a methodology that takes investment in clean energy to reasonably estimate the individual income, corporate, and sales tax revenues from clean energy deployment.[67]
- **Environmental Protection** – working in consultation with the United States Environmental Protection Agency ("USEPA") and DEEP, the Green Bank devised a methodology that takes the reduction in consumption of energy and increase in the production of clean energy to reasonably estimate the air emission reductions (i.e., CO2, NOx, SO2, and PM2.5) resulting from clean energy deployment.[68]
- **Public Health Improvement** – working in consultation with the EPA, DEEP, and the Connecticut Department of Public Health ("DPH"), the Green Bank devised a methodology that takes air emission reductions to reasonably estimate the public health

[66] https://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB_DECD_Jobs-Study_Fact-Sheet.pdf
[67] https://www.ctgreenbank.com/wp-content/uploads/2018/09/CGB-Eval-Tax-Methodology-7-24-18.pdf
[68] https://www.ctgreenbank.com/wp-content/uploads/2018/01/CGB-Eval-IMPACT-091917-Bv2.pdf

benefits (e.g., reduced hospitalizations, reduced sick days, etc.) and associated savings to society resulting from clean energy deployment.[69]

- **Equity** – with the passage of PA 20-05, the Green Bank devised a methodology that takes the definition of "vulnerable communities" to track progress towards the goal of ensuring that no less than 40 percent of investment from its programs are directed to vulnerable communities by 2025.
- **Energy Burden** – working in consultation with DEEP and PURA, the Green Bank devised a methodology that takes actual solar PV production data from meters compared against contractual lease and PPA prices, to estimate the energy burden reduction from financing solar PV.

Each year, the Green Bank develops additional methodologies that value the impact the Green Bank is helping create in Connecticut and all of society. For more information on the Green Bank's impact methodologies, visit the Impact page of the website.[70] In FY 2023, the Green Bank will revise its methodologies beyond "clean energy" to also include "environmental infrastructure" projects and their associated benefits.

The Green Bank's efforts to increase investment in and deployment of clean energy and environmental infrastructure projects – which result in increased benefits to Connecticut and all of society – can also be looked at through the lens of the United Nation's Sustainable Development Goals ("UNSDG's").[71] The UNSDG's include, but are not limited to – reducing poverty, improving health and well-being, making clean energy affordable, increasing economic development, reducing inequalities, supporting sustainable communities, and confronting climate change – areas where the Green Bank is measuring (or will measure) the impacts of its investments.

10. Reporting and Transparency

The Green Bank has extensive reporting on its financial management and societal impact through various mechanisms. As a recipient of public revenues (i.e., CEF and RGGI allowance proceeds), the Green Bank believes that complete transparency is important to ensure the public's continued trust in serving its purpose. The Green Bank reports to the Governor's Office (i.e., OPM), various committees of cognizance within the Connecticut General Assembly (i.e., energy & technology, commerce, environment, and banking), and other departments (e.g., DEEP, Office of Fiscal Analysis)

10.1 Comprehensive Annual Financial Report ("CAFR")

A Comprehensive Annual Financial Report ("CAFR") is a set of government financing statements that includes the financial report of a state, municipal or other government entity that complies with the accounting requirements promulgated by the Governmental Accounting Standards Board ("GASB"). GASB provides standards for the content of a CAFR in its annually updated publication *Codification of Governmental Accounting and Financial Reporting Standards*. A

[69] https://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB-Eval-PUBLICHEALTH-1-25-18-new.pdf
[70] http://www.ctgreenbank.com/strategy-impact/impact/
[71] https://www.un.org/sustainabledevelopment/sustainable-development-goals/

CAFR is compiled by a public agency's accounting staff and audited by an external American Institute of Certified Public Accountants ("AICPA") certified accounting firm utilizing GASB requirements. It is composed of three sections – Introductory, Financial, and Statistical. The independent audit of the CAFR is not intended to include an assessment of the financial health of participating governments, but rather to ensure that users of their financial statements have the information they need to make those assessments themselves.[72]

To date, the Green Bank has issued seven CAFR's, including:

- Fiscal Year Ended June 30, 2014 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2015 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2016 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2017 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2018 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2019 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2020 (Certificate of Achievement)
- Fiscal Year Ended June 30, 2021

As the "gold standard" in government reporting, the CAFR is the mechanism the Green Bank uses to report its fiscal year financial and investment performance – including societal benefits and impacts – to its stakeholders. For each of its seven years filing the CAFR with the Government Finance Officers Association the Green Bank has received a Certificate of Achievement for Excellence in Financial Reporting.[73]

10.2 Annual Report

Beyond the CAFR, the annual reports of the Green Bank are compiled by the marketing staff and include consolidated financial statement information and narratives of various program achievements in a condensed format that can be widely distributed.

To date, the Green Bank has issued nine annual reports, including:

- Fiscal Year 2012 Annual Report
- Fiscal Year 2013 Annual Report
- Fiscal Year 2014 Annual Report
- Fiscal Year 2015 Annual Report
- Fiscal Year 2016 Annual Report
- Fiscal Year 2017 Annual Report
- Fiscal Year 2018 Annual Report

[72] The Government Finance Officers Association (GFOA), founded in 1906, represents public finance officials throughout the United States and Canada. GFOA's mission is to enhance and promote the professional management of governmental financial resources by identifying, developing, and advancing fiscal strategies, policies, and practices for the public benefit. GFOA established the Certificate of Achievement for Excellent in Financial Reporting Program (CAFR Program) in 1945 to encourage and assist state and local governments to go beyond the minimum requirements of generally accepted accounting principles to prepare CAFRs that evidence the spirit of transparency and full disclosure and then to recognize individual governments that succeed in achieving that goal.

[73] GAO has yet to designate the FY 2020 CAFR with a Certificate of Achievement

- Fiscal Year 2019 Annual Report
- Fiscal Year 2020 Annual Report
- Fiscal Year 2021 Annual Report

10.3 Auditors of Public Accounts

The office of the Auditors of Public Accounts ("APA") is a legislative agency of the State of Connecticut whose primary mission is to conduct audits of all state agencies, including quasi-public agencies. Included in such audits is an annual Statewide Single Audit of the State of Connecticut to meet federal requirements. The office is under the direction of two state auditors appointed by the state legislature. The APA audited certain operations of the Green Bank in fulfillment of its duties under Sections 1-122 and Section 2-90 of the CGS

To date, the APA has conducted three audits, including:

- Fiscal Years 2012 and 2013
- Fiscal Years 2014 and 2015
- Fiscal Years 2016 and 2017
- Fiscal Years 2018 and 2019

10.4 Open Connecticut and Open Quasi

Open Connecticut centralizes state financial information to make it easier to follow state dollars. In Connecticut quasi-public agencies are required to submit annual reports to the legislature, including a summary of their activities and financial information. In addition to that, the Comptroller's office requested that quasi-public agencies voluntarily provide payroll and checkbook-level vendor payment data for display on Open Connecticut. The Green Bank, which was among the first quasi-public organizations to participate, has voluntarily submitted this information since the inception of Open Connecticut.[74] In June of 2020, the Comptroller launched Open Quasi, which provides payroll and checkbook level data for all quasi-public organizations in Connecticut.

For more information, go to http://www.openquasi.ct.gov/

10.5 Stakeholder Communications

The Green Bank holds quarterly stakeholder webinars to update the general public on the progress it is making with respect to its Comprehensive Plan and annual targets.[75] Through these webinars, the Green Bank staff invite questions from the audience. These webinars are announced through the Green Bank's list serve consisting of thousands of stakeholders as well as the events page of its website.[76]

[74] https://openquasi.ct.gov/
[75] https://www.ctgreenbank.com/news-events/webinars/
[76] https://www.ctgreenbank.com/news-events/events-calendar/

The Green Bank also issues an e-newsletter through its list serve that provides key topics in the news and important information on products, programs and services.[77]

11. Research and Product Development

As the Green Bank implements its Comprehensive Plan, there will be ongoing efforts to develop new market opportunities for future green investments. With the lessons being learned and best practices being discovered in the green economy, the Green Bank's ability to deliver more societal benefits requires understanding potential opportunities and the development of pilot programs and initiatives to increase impact, including, for example:

- **Shared Clean Energy Facilities** – to support decarbonizing the electricity infrastructure climate change wedge, while reducing the burden of energy costs on Connecticut's families and businesses, the Green Bank will seek to apply its experience administering the RSIP to supporting and investing in shared clean energy facilities (or community solar projects) with a focus on LMI families;
- **Energy Burden from Transportation** – as Operation Fuel has done an exceptional job quantifying the energy burden for electricity use and heating of homes, understanding the energy burden from transportation (i.e., gasoline to alternative fuel vehicles) will help the Green Bank and others (e.g., Department of Housing, Connecticut Housing and Finance Authority, Partnership for Strong Communities, DEEP, etc.) understand its role in addressing the decarbonization of transportation emissions climate change wedge;
- **Environmental Infrastructure** –the Green Bank could apply the green bank model to mobilize private investment in "environmental infrastructure".[78] Working with DEEP and other state agencies, local governments, nonprofit organizations, academic institutions, and businesses, the Green Bank could, for example, identify new areas for increased investment in climate change adaptation and resiliency through the issuance of green bonds;[79] and
- **Metering** – to better understand the performance of various technologies, the Green Bank might support the deployment of meters. For example, meters for ground source heat pumps are being provided for free for the first 50 customers that finance such systems using the Smart-E Loan. Performance data collected from the meters and analyzed from such systems, over time, will inform installation, servicing, and financing of such systems supporting their wider adoption.

[77] https://www.ctgreenbank.com/newsletters/
[78] Proposed Senate Bill 927 in the 2019 Legislative Session
[79] Section 10.3 Sustainability of the Comprehensive Plan of the Connecticut Green Bank for FY 2017 through FY 2019 recognizes that other green banks invest beyond "clean energy" and include "environmental infrastructure".

The Green Bank's research product development efforts are intended to open-up new market channels for private investment in Connecticut's green economy through studies, pilot projects, and other initiatives that have the potential for expanding the impact of the Green Bank.

12. Budget

12.1 FY 2020 Budget

For the details on the FY 2020 budget– click here.

For details on the FY 2019 to FY 2020 variance analysis supporting the continuation of the Sustainability Plan – click here.

12.2 FY 2021 Budget

For the details on the FY 2021 budget– click here.

For details on the FY 2021 revised budget – click here.

12.3 FY 2022 Budget

For the details on the FY 2022 budget– click here.

For details on the FY 2022 revised budget – click here.

13. Glossary of Acronyms

ABS	Asset-Backed Security
ACG Committee	Audit, Compliance, and Governance Committee
AICPA	American Institute of Certified Public Accountants
APA	Auditors of Public Accounts
ARRA	American Recovery and Reinvestment Act
BOC Committee	Budget, Operations, and Compensation Committee
BOD	Board of Directors
CAFR	Comprehensive Annual Financial Report
CBI	Climate Bonds Initiative
CCEF	Connecticut Clean Energy Fund
CDFI	Community Development Financial Institution
CEF	Clean Energy Fund
CGS	Connecticut General Statutes
C-PACE	Commercial Property Assessed Clean Energy
DECD	Department of Economic and Community Development
DEEP	Department of Energy and Environmental Protection
DPH	Department of Public Health
DRS	Department of Revenue Services
EDC	Electric Distribution Company
EEB	Energy Efficiency Board
EEPP	Electric Efficiency Partners Program
EIF	Environmental Infrastructure Fund
EV	Electric Vehicle
GASB	Governmental Accounting Standards Board
GHG	Greenhouse Gas Emissions
HES	Home Energy Solutions
HES-IE	Home Energy Solutions – Income Eligible
IPC	Inclusive Prosperity Capital
LMI	Low-to-Moderate Income
MPA	Master Purchase Agreement
MTI	Master Trust Indenture
OPM	Office of Policy and Management
PA	Public Act
PPA	Power Purchase Agreement
PURA	Public Utilities Regulatory Authority
REC	Renewable Energy Credit
RGGI	Regional Greenhouse Gas Initiative
RPS	Renewable Portfolio Standard
RSIP	Residential Solar Investment Program
RSIP-E	Residential Solar Investment Program – Extension
SBEA	Small Business Energy Advantage
SCRF	Special Capital Reserve Fund
SHREC	Solar Home Renewable Energy Credit
SMA	Separately Managed Accounts

UNSDG	United Nations Sustainable Development Goals
USDA	U.S. Department of Agriculture
USDOE	U.S. Department of Energy
USEPA	United States Environmental Protection Agency
ZEV	Zero Emission Vehicle

HARVARD Kennedy School
ASH CENTER
for Democratic Governance
and Innovation

Climate Smart Controlled Environment Agriculture (CEA) for Tribes and Small Farms in New England: Building Profitable, Sustainable and Resilient Farms

1. Executive Summary

1.A Contact Information

Dr. Sydney Everhart, Head
Dept. of Plant Science and Landscape Architecture
College of Agriculture, Health, and Natural Resources (**CAHNR**)
University of Connecticut**,** Storrs, CT, 06269
everhart@uconn.edu 860-486-2925

Ms. Tracy Bourassa
Director of Pre-Award Services
University of Connecticut
438 Whitney Road Ext., Unit 1133
Storrs, CT 06269-1133
preaward@uconn.edu / 860-486-3622

1.B List of Project Partners

Partner	Role on Project
UConn CAHNR	Administrative leadership, project management and financial oversight
UConn CAHNR Dept. of Plant Science and Landscape Architecture	Oversee plant systems investigations, including: improved soil / plant nutrient efficiency, advanced greenhouse systems, increasing yields, year-round production, N-use efficiency. Coordinate plant production and CEA outreach.
UConn Cooperative Extension	Coordinate assistance and education for farmers, provide assistance for New England tribes, coordinate engagement with New England Region extension services
UConn Center for Clean Energy Engineering (C2E2)	Expertise for clean energy technology assessments, outreach, Research and education in clean energy technologies, including fuel cell technology use from small to large scales.
Southern New England Industrial Assessment Center (SNE-IAC) at UConn	Provide engineering expertise and lead tasks on energy and greenhouse gas emission benchmarking, audit, and certification, as well as training and education in these areas.
Mashantucket Pequot Tribal Nation, Connecticut	Host pilot facility on tribal land. Work with other tribes in New England to advance CEA technologies to be piloted
Connecticut Green Bank	Provide financial assistance direct to farmers through incentives. Establish carbon credit system for New England
Farm Credit East	Grants and loans direct to farmers
CT Department of Agriculture	Lead, label and marketing campaign for New England
University of Maine	Direct assistance to farmers
University of Massachusetts	Direct assistance to farmers
University of New Hampshire	Direct assistance to farmers
University of Rhode Island	Direct assistance to farmers
University of Vermont	Direct assistance to farmers

1.C List of Underserved Minority-Focused Project Partners

Mashantucket Pequot, CT Tribe	Host of pilot facility in year 1 of grant, existing partner
Mashpee Wampanoag Tribe, MA Mohegan Tribe, CT	Participant in outreach initiatives and knowledge translation to existing agricultural operations
New England Farmers	Our target is to engage 1,030 small farms/ farmers throughout New England in the five years of the project

1.D Compelling Need for the Project

Context: New England (CT, MA, ME, NH, RI, VT) is home to approximately 3,494 farms that operate CEA and nursery production systems, of which 92% reported a farm gate value less than $250k (USDA Ag Census, 2017, Table 75), meaning that the vast majority of CEA farms in New England qualify as "small or historically underserved producers." Farms producing food crops grown under cover and floricultural crops represent around 55,498 acres within New England. The large population centers of the NYC-New England region with their demand for fresh, local, and sustainable agricultural products present a vast market for the region's small producers.

Challenge: Applying controlled environment systems, such as greenhouses and indoor farming, offer an opportunity for increased plant production for New England's small producers. CEA systems can extend the production season and allow year-round production of high-demand commodities, such as tomatoes, leafy vegetables, hemp, and ornamental plants. With increased control over water, nutrients, light, and heat, CEA systems offer enhanced climate resilience compared to open field agriculture, reducing climate-related risk and increasing yields. Barriers exist, however, to widespread adoption of CEA systems in New England, such as a prohibitive entry cost for adopting new energy technology - despite the long-term potential for a positive return on investment, farmers are often reluctant to take on risk. In addition, few modern and advanced systems at a commercial scale exist in the region, making it difficult for small producers to form positive attitudes towards CEA and adopt the innovation. Finally, in New England, the cost of energy required for heating, cooling, and lighting is a major limiting factor for CEA growth.

Project Goal: This project aims to create a comprehensive framework and viable implementation pathways for Climate Smart CEA plant production that augments agriculture within all six New England states, prioritizes service to the 3,212 small New England farms, and directly supports agricultural initiatives by New England's tribal nations. (See Figure 1)

Approach: As described in Figure 1, our proposed framework for expanding Climate-Smart CEA adoption throughout New England is comprised of five main components: 1) Technical Assistance, 2) Verification and Monitoring, 3) Financial Assistance, 4) Climate-Smart CEA Demonstration Sites, and 5) Program Expansion through Outreach, Marketing, and Communication.

Technical Assistance: In the areas of plant production systems, energy productions systems, and financial assistance, technical assistance will be delivered through direct engagement with farmers, energy and GHG assessments, recommendations for application of energy savings technologies, and other means. Demonstration sites apply multiple energy saving and energy production technologies, such as fuel cell technology and smart lighting and heating systems, to reduce the GHG emissions that are a byproduct of New England CEA operations.

Verification and Monitoring: A CEA-focused energy auditing process will be developed and implemented. The energy audits of CEA operations will allow qualified personnel to identify and prescribe: 1) opportunities for carbon sequestration, and 2) technological modifications that will enable quantifiable reductions in GHGs.

Financing: Financial support direct to farmers will be provided by: direct grants to obtain program-prescribed technology, performance-based incentives to offset the cost of acquiring qualified technology, and a performance-based carbon credit incentive program to reward the successful implementation of climate smart practices that monetize climate smart commodities

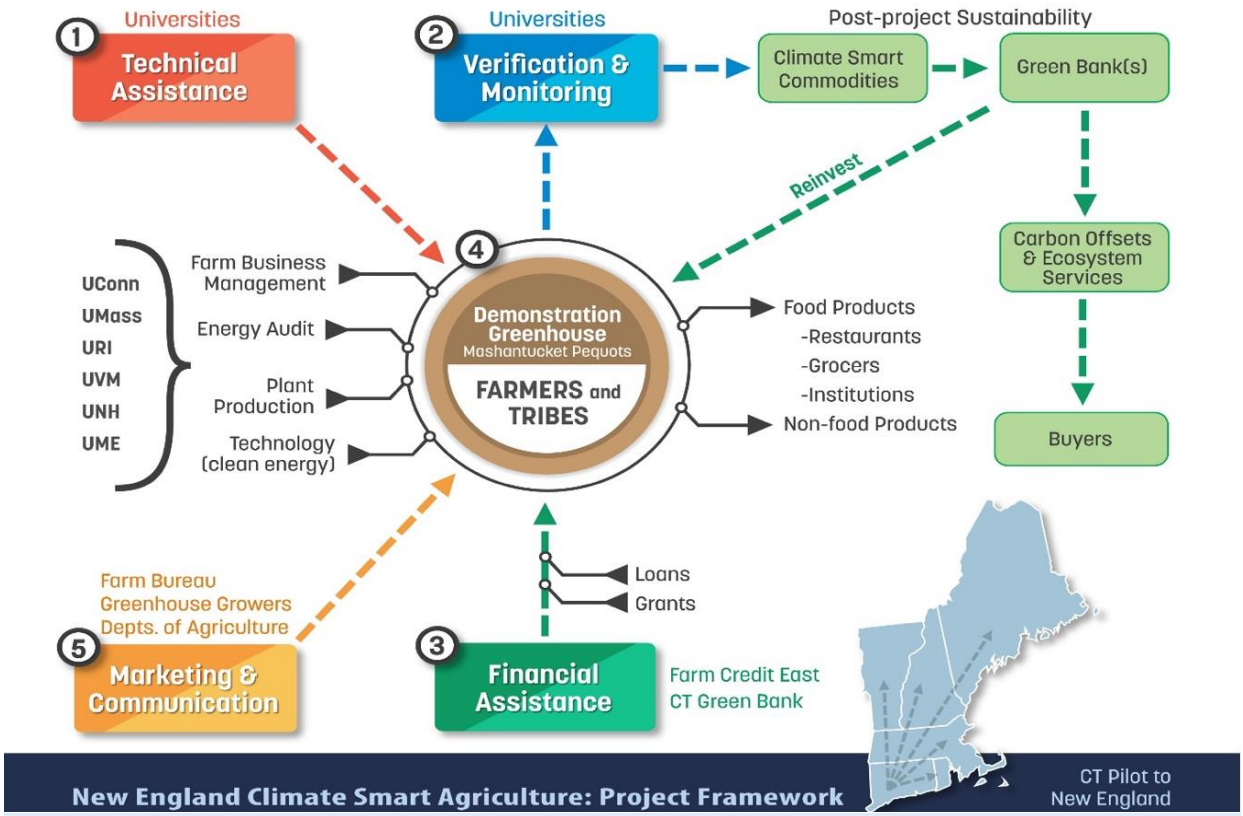


Figure 1: Project framework and pathways for expanding Climate Smart CEA practices in New England

(i.e., carbon offsets, ecosystem services) from crop lands and CEA practices. Grant support will be provided to qualified farmers to enable them to acquire/adopt energy-saving technologies/ strategies and to monetize practices that result in the production of climate smart commodities. State-level green banks will provide performance-based incentives for producers and long-term financial sustainability of the program. Establishing reduction standards for lowering GHG and increasing carbon sequestration will allow qualified CEA producers to use a "Climate Smart CEA" label on their commodities. As a proof-of-concept, modelled after the War Bonds of the 1940's, the application of Green Liberty Bonds for agricultural lands will be piloted through a partnership with the CT Green Bank, which would provide low-cost and long-term capital to finance equipment and infrastructure for open farmlands and CEA facilities to enhance financial stability for producers via retail investment in certified climate bonds from citizens across the country.

Demonstration Sites in CT*:* In year 1, four sites will pilot demonstration facilities that feature adaptations appropriate for facilities of different sizes. Historically underserved native American tribal groups will be partners for integration of technology into a new greenhouse on the Mashantucket Pequot Tribal Nation (MPNT) reservation so that it could qualify for the Climate Smart CEA label. A large-scale commercial facility, Geremia Greenhouse, will participate in incorporation of state-of-the-art clean energy technology that might not be feasible on a small scale. Spring Valley student-run farm, which supplies food to UConn's dining halls, will be the site of a small-scale modification of hoop houses for Climate Smart food production, and the UConn Blooms flower and greenhouse will be a small-scale high tech greenhouse conversion to Climate Smart as proof-of-concept for the green industry.

Project Expansion and Marketing and Communications Efforts: In years 2-5, the project will be expanded to serve the entire New England region. Technology integrated into greenhouses in CT will support Extension outreach to facilitate adoption of Climate Smart CEA technologies and practices throughout New England. To facilitate adoption, our activities will combine market analysis to demonstrate value; Extension outreach education to producers, wholesalers, and consumers, and a large financial incentives program supported through a partnership with Farm Credit East, CT Green Bank, and the CT Department of Agriculture. Technical assistance to farmers will be established within each state as part of the project and these individuals will help to disseminate information and expand the project throughout the New England region.

1.E Approach to minimize transaction costs associated with project activities

Costs associated with contracting activities that are essential for the trade of CEA goods and services can be an incumbering factor for farmers that outweighs the economic benefits of reducing GHG emissions, particularly with respect to trading of GHG. The proposed project will minimize transaction costs associated with the implementation of CSAF practices by providing case management services to navigate farmers through the decision-making process, including identifying the appropriate technologies, financial package to purchase and install, data collection and analysis of the impact on the cost of production, marketing the product, aggregating the GHG value, and taking that GHG value to market for compensation. The farm will remain focused on production with the support through a successful transition. In addition, a carbon credit market will be developed to support CSAF throughout New England. The CT Green Bank is the nation's first green bank established in 2011 and has a track record of success in identifying markets, negotiation, and monitoring activities associated with the carbon credit program. Establishing and articulating a set methodology in systematically collecting data and constructing empirical analyses that can be applied throughout New England will be one of the first tasks accomplished by the CT Green Bank. Following which, Climate Smart Agriculture practices can be monetized. The CT Green Bank has existing relationships with the private sector that will be leveraged to identify investors to create low-cost, long-term sustainable financing to maximize the use of public funds in this project. Moreover, proposed technologies, such as fuel cells for combined heat and power, are commercially mature technologies with multiple OEMs producing competitive products; therefore, the market will dictate pricing. The implementation of clean energy systems combining heat and power for CEA is unique, but will not require one-of-a-kind technologies with extensive development costs.

1.F Approach to reduce producer barriers to implementing CSAF practices for the purpose of marketing climate-smart commodities

The project's regional framework establishes viable pathways for farmer adoption of CSAF practices, including technical and financial assistance, and implements a comprehensive marketing and outreach strategy that communicates the benefits of CSAF practices to producers. See item 1.D.5 above, *Project Expansion.* The project team will also develop a Climate Smart certificate program appropriate for farmers. The certificate program will also develop workforce skilled in clean energy technologies and CEA practices. A Climate Smart Energy Auditor/Educator will be trained and a CEA Energy Auditor/Educator hired for each of the New England states. Two farm business planners will be hired to reduce barriers for small farmer participation by providing financial planning and commodity tracking assistance directly to farmers.

1.G. Geographic Focus

Connecticut and New England. See Figure 2.

1.H. Project management capacity of partners Administrative leadership and overall responsibility for the project and its outcomes will be assumed by Dr. Sydney Everhart of UConn CAHNR. Dr. Everhart will be supported in the management and administration of the project through the administrative resources of CAHNR, and particularly the outreach infrastructure offered by UConn/ CAHNR's Cooperative Extension System. The **leadership team** also includes **Bryan Garcia, CEO of Connecticut Green Bank**, and **Bryan Hurlburt, Commissioner of the Connecticut Department of Agriculture**, and a Project Director for Multi-State Activities, to be named. A stakeholder advisory board will be established that includes representation from relevant energy technology companies, producer groups, and food and green industries. The organizational structure envisioned for the project is found in Figure 3. The capacity and experience of the organizations that will project initiatives is described below.

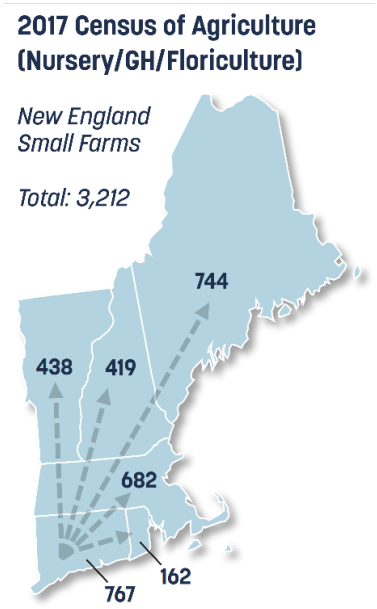


Figure 2: Geographic focus.

The **CAHNR Cooperative Extension System,** which has provided science-based knowledge to Connecticut's agricultural producers for more than 100 years is uniquely positioned to lead this project. Extension has strong working relationships with extension systems in the partner universities, which will expand the impact of this project to the entire region. With a portfolio exceeding $6M per year in grants, CAHNR Extension has the expertise and experience to manage large-scale and complex projects that can deliver climate smart outcomes across the region.

CAHNR Extension professionals and scientists are partnering with the **UConn School of Engineering Center of Clean Energy Engineering** to leverage their technical depth of expertise in clean energy technologies. This partnership ensures that technical assistance and workforce development in plant systems and energy systems will be equally strong and will lead to effective, practical CEA solutions as well as comprehensive Climate Smart CEA workforce development initiatives. Monitoring and Verification efforts will be led by Dr. Liang Zhang, director of the **Southern New England Industrial Assessment Center (SNE-IAC)**. SNE-IAC was established by the US Department of Energy to conduct industrial assessments to help local manufacturers reduce carbon footprint, lower costs, and train the energy workforce of tomorrow. As one of a national network of IACs, SNE-IAC brings depth and breadth of technical expertise and client engagement experience to monitoring, assessment, and verification efforts.

Introducing new clean energy technologies through Cooperative Extension builds on the successful foundation of trust between growers and Extension. CAHNR Extension also has created excellent partnerships with two Tribal nations in the region – the **Mashantucket Pequot Tribal Nation and the Mohegan Tribal Nation**. Both tribes are collaborating with Extension on federal grants that address food security and workforce development in agriculture. The proposed project will build upon and leverage these partnerships to expand food production by the Tribes and serve as a demonstration site for additional Tribes interested in CEA.

Farm Bureaus across the region will facilitate communication and marketing of the project to local growers. These farmer-led organizations greatly enhance peer-to-peer learning within and across states and strengthen our direct communication with farmers across the region.

Our project includes a mechanism to promote long-term sustainability of this work by bundling carbon offsets and ecosystem services that can be sold to promote farm resilience and sustainability across the region. The **CT Green Bank** has financed clean energy projects for producers and landowners through its financing programs, including rooftop solar PV for retailers of timber and anaerobic digester gas for onsite energy facilities from farm waste and food waste. These projects produce zero emission and low emission renewable energy credits that reduce GHG emissions. Connecticut recently passed a law expanding the scope of the Green Bank beyond "clean energy" to include "environmental infrastructure," which includes agriculture, land conservation, water, and other resources of the state's green economy. Bryan Garcia, CEO of CT Green Bank, will lead financial assistance initiatives for the project. (See letter of support.) Contributing to the financial assistance effort is **Farm Credit East (FCE)**, the largest provider of loans to farmers in the region. FCE has decades of experience working with farming operations to ensure financial stability and profitability for growers. FCE will oversee financial assistance grants to farmers in the region. Where appropriate, they will establish loans for infrastructure or other non-project costs. (See letter of Support.)

The Connecticut Department of Agriculture (CT DoAg) regularly engages with producers and land owners through its regulatory responsibilities, the millions of dollars released through multiple grant programs, and the voluntary boards, councils, and commissions for which the agency is responsible. The DoAg recently chaired the Soils/Working Lands Committee of the Governor's Council on Climate Change, where it reported out dozens of recommendations to support climate-smart activities. In addition, DoAg is currently supporting the Diversity, Equity, and Inclusion Working Group; an effort that brings over 40 BIPOC community members to improve outreach and engagement to ensure that BIPOC farmers have a productive and profitable career in agriculture in CT. Mr. Bryan Hurburt, CT DoAg Commissioner, will lead the project's marketing effort and is in an excellent position to interact with the commissioners of agriculture in the other New England states. (See letter of support.)

UConn CAHNR's **Zwick Center for Food and Resource Policy** provides economic research on problems related to food, public health, natural resources, environment, energy, and sustainable regional economic development. The Center provides research results in the form of practical information for individuals, firms and public policy-makers to use to enhance decision-making outcomes and the functioning of markets. (See letter of support).

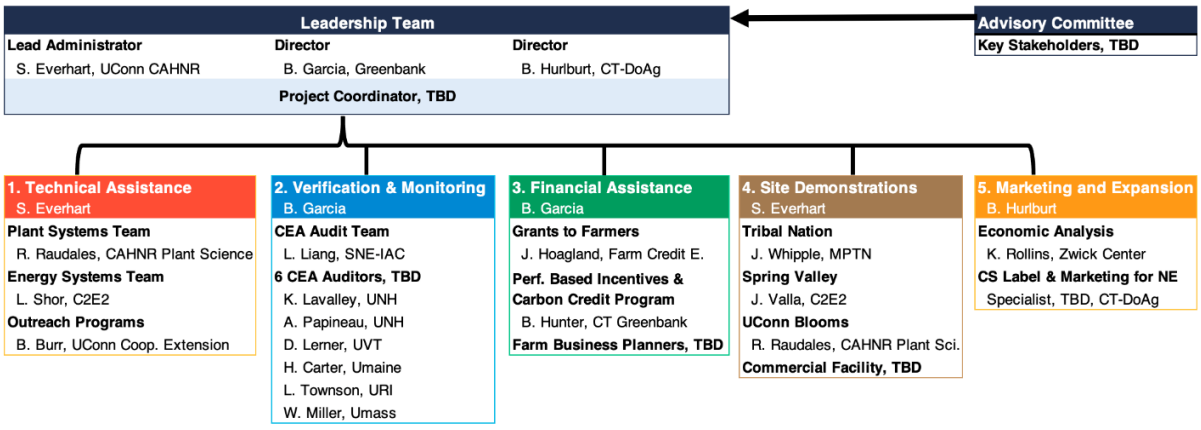


Figure 3: *Project management approach and team structure*

2. Plan to Pilot Climate-Smart Agriculture on a Large Scale

Approach: This project seeks to establish a framework and implementation pathways for Climate-Smart CEA food production by small farms. As described in Figure 1, this framework is comprised of five main components: 1) Technical Assistance, 2) Verification and Monitoring, 3) Financial Assistance, 4) Climate-Smart CEA Demonstration Sites, and 5) Program Expansion through Outreach, Marketing, and Communication. This project will unfold in two phases:

Phase 1: Establish Support Framework and Build Pilot Demonstration Sites

Climate Smart CEA pilot facilities on various scales will be developed at UConn's student farm and UConn Blooms greenhouse (small scale), the Mashantucket Pequot tribe (medium scale), and Geremia Greenhouse, (large scale). Technology to achieve a Climate Smart designation will vary depending upon location and size. Pilot facilities demonstrate the Climate-Smart technologies and certification process, which will require the development of Climate Smart CEA criteria. These criteria will capture the energy and GHG emission footprint of the commodities produced on-site and across the entire supply chain. Relevant data such as material supplies, equipment, operations, utilities, transportation/distribution will be collected and on-site measurements taken on major energy equipment and on soil, water, and air within the site. These criteria will become the basis of our Climate Smart CEA Energy Audit process (Section 3).

The pilot facilities will support on-site demonstrations, training, and recruitment of participants for Phase 2 of the proposed project. Concurrently, we will engage with Verra's Voluntary Carbon Standard ("VCS") and partners to establish metrics of verification for climate smart carbon offsets, as described in Section 3, below. Our goal in year 1 is to recruit 30 farmers to participate in our educational programs and energy audit process to receive technology recommendations needed for pursuing the Climate Smart certification. Among those 30, our goal is to identify 5 producers that would work to obtain the Climate Smart certification. Funding payable direct to farmers will be available via Farm Credit East (FCE) for technology acquisition. However, to apply for the funding through FCE, each farmer will be required to document assets and liabilities for their business. Since preparing the required financial documents can be an undue burden for participation, we will hire two business planners that will be trained to serve farmers in southern and northern New England. A farm business planner will assist each farmer with preparing an enterprise budget, which documents inputs by category, quantity of inputs and expected associated costs, revenue streams, and expected profit. They will also assist each farmer with the grant application process. Funding decisions by FCE will be directed by a panel of advisors without affiliation with FCE to ensure a fair and unbiased process. Funding decisions will prioritize small farms. Concurrently, economic analysis of potential markets and value of the Climate Smart label will be initiated and involve participation of farmers, wholesalers, and end-users, including restaurants, grocery stores, consumers, and institutions within the supply chain served by New England plant products. To support the transition and raise awareness of the climate smart production, CT DoAg will develop a recognizable label for Climate Smart commodities and a multi-media campaign to engage consumers, based off an established framework policy and certification for obtaining the Climate Smart certification decisions by FCE will be directed by a panel of advisors without affiliation with FCE to ensure a fair and unbiased process. Funding decisions will prioritize small farms. Concurrently, economic analysis of potential markets and value of the Climate Smart label will be initiated and involve participation of farmers, wholesalers, and end-users, including restaurants, grocery stores, consumers, and institutions within the supply chain served by New England plant products. To support the transition and raise awareness of the climate smart production, CT DoAg will develop a recognizable label for Climate Smart

commodities and a multi-media campaign to engage consumers, based off an established framework policy and certification for obtaining the Climate Smart certification

Phase 2: Expansion throughout New England

In Phase 2, The program will focus on education, outreach, and recruitment to engage producers throughout New England in the acquisition of a Climate Smart label. Partnerships with land-grant institutions within each of the additional five New England states will be leveraged to train an outreach specialist in each state who will receive a Climate Smart training certificate and will make on-site audits of facilities of farmers seeking participation in the program. Programs will be developed for outreach and education, with recruitment focused on historically underserved producers (small farms, tribal nations, women and minority farmers, etc.). Education programs will be developed and designed in collaboration between the multi-state Energy Auditors / Educations that are hired as part of this project, with state-specific guidance provided by Extension specialists within each state. In the second phase, our goal is to recruit 250 farmers per year to participate in the educational programs to describe the Climate Smart program we will have designed and short- and long-term benefits to the farmers that participate. Participating farms would receive a comprehensive energy audit of their existing CEA facility, which will be accompanied by a recommendation of technology that can be integrated into the facility to reach the benchmark for certification. To assist farmers with the financial process, one of the two business planners hired in the project (one for southern NE and one for northern NE) will make an enterprise budget for the farm and will enable the farm to apply for funding from Farm Credit East through this project. The goal of the program is to achieve a 10% adoption rate.

2.A. A description of the CSAF practices to be deployed, Task 1: Technical Assistance

Renewable energy sources: C2E2 will conduct small-scale technology development projects that can provide the basis for large scale demonstrations. Co-PI Valla will lead lab scale demonstrations and analysis of various waste to energy technologies and their translation to large-scale operations. Co-PI Pasaogullari will lead efforts on analysis and assessment of on-site processing of agricultural waste to co-produce electricity, heat, and cooling though fuel cells. The following technologies have the potential to be implemented in this project:

Thermochemical conversion (pyrolysis and/or gasification) of farm waste to produce *bio-oils, biogas and biochars*. The team will investigate how operating conditions of waste-to-energy technologies affect the composition of *bio-oils, biogas and biochars* and will evaluate which of these can add more value to the farms. A reformer and water gas shift reactor will be built to upgrade the *bio-gas* and maximize its conversion to hydrogen, which is fed to fuel cells for electricity generation. Operating conditions and catalysts for the reformer and fuel cell will be investigated. **This work will result in a bench scale fully integrated (waste-to-electricity), demonstration unit** that support the translation of renewable energy technologies to small scale and larger scale units. *Bio-oils* derived from waste conversion through pyrolysis can also provide energy for heating or production of other chemicals. *Biochars* can be used for soil amendment and purification purposes. The team has demonstrated that biochars produced by pyrolysis of food waste can be attractive fertilizers and can even be used as sorbents for water purification purposes. Spring Valley Farm will provide waste for this work. Spring Valley, Geremia Greenhouse, and the industrial partners will collaborate with us in an iterative process, where we will provide bench scale data and they will provide feedback on.

Fuel Cell technologies to provide heat and power for CEA. Fuel cells are excellent distributed generation assets due to their high efficiency (>60% for fuel cells vs ~33% average for grid), and increased potential for combined (cooling) heat and power, C(C)HP which further increases the

value of the fuel. CEA is an excellent use case for fuel cells given their potential to significantly lower energy costs and decreased or zero carbon intensity. Fuel options for fuel cells are numerous: ideal fuel is biofuel from local agricultural waste, which will result in carbon negative operation; where and when available renewable, green hydrogen will ensure carbon-free greenhouses; even with pipeline natural gas during the transition to zero-carbon, higher efficiency and CHP result in lower GHG emissions. In this project, we will develop designs to integrate distributed generation into CEA facilities. The resulting tool will consider all fuel options, assess technical feasibility and provide cost estimates. This project will provide initial designs for the demonstration projects, and work with fuel cell OEMs for final integration.

Technoeconomic Evaluation of smart technologies. Advanced sensing, communication, and control technologies from Industry 4.0 can greatly benefit the agriculture sector by implementing smart and automation technologies in farms. We will investigate such technologies that can be deployed at CEA environments to enhance their operation efficiency and reduce carbon footprint.

Optimizing Plant Production Systems: CEA systems are designed to provide optimal growing conditions for crops and prevent disease and pest damage. CEA is a system to modify plant growth environment so that the production season can be extended and/or the plant productivity maximized with minimum inputs. CEA can help meet year-round demand for local foods by growing crops in high tunnels, hoop houses, greenhouses, warehouses, rooftops and vertical farms. The team of Co-PI Raudales, a horticultural greenhouse production specialist, Co-PI Tao, an expert in soil nutrient management and plant nutrition, and Co-PI Li, an expert in soil nutrient sensing, will take the following approaches for maximizing Climate Smart CEA outcomes:

Novel lighting systems for heat recovery and smart lighting. Advances in managing heat from lighting are allowing transfer of heat through the greenhouse system. Liquid cooling transfers heat out of the cultivation environment, reducing heat load in grow environments by half, and heat from water-cooled fixtures can be moved to the outside air using dry coolers or transferred to geothermal heat pumps for transfer. A completely automated system that combines air cooled chillers, dry/fluid coolers, high efficiency boilers, AC units/cooling, heating, horticultural LED lighting, heat recovery from lights, and free cooling through dry cooler is a major advance in heat management within CEA. These systems already exist within high-performance computing centers but are less well known within CEA facilities due to the higher initial investment, yet are now commercially available (see letter of support from Adaptiiv).

Reducing GHG emission via optimizing plant production and yield: Water and nutrient management practices that result in maximum genetic potential, while also reducing water and nutrient inputs and runoff into the environment, will be modeled and evaluated as methods for quantifiable reduction in GHG emissions and carbon sequestration. All pilot facilities will be designed to have closed-loop irrigation systems to recirculate water and nutrients. Optimal nutrient management practices and co-cultivation will be integrated to ensure efficient uptake of nutrients by plants. These environmental features will be tracked in real-time and control for pH, electrical conductivity, phosphorus, nitrate and ammonium, as well as GHG emission.

Optimizing systems for year-round plant production: Year-round production of plants within CEA is possible, but can be hindered by inefficient plant management practices. Within pilot facilities, we will establish systems that model optimized plant production methods and use these systems to estimate the GHG reductions throughout the year. Heat distribution in commercial greenhouses with diverse cover materials of the structures and ventilation systems will be incorporated into energy auditing systems. Experiments to determine the lowest temperature thresholds at which high-demand crops can be produced while maintaining marketable yields.

These experiments will assess whether changes in nutrient programs or the application of biostimulants affects crops' tolerance to low temperatures in greenhouses.

Promoting CSAF in New England through Monetization and Green Banks: Co-PI Garcia of CT Green Bank will lead development of a certification and verification protocol to enable the monetization of CSAF commodities throughout the New England region. Existing VCS methodologies for agriculture, regional forestry and innovative approaches to CSAF practices can be utilized or modified for this project and used by participating producers. In this project, a cost-effective monitoring and verification process would be established that may include remote sensing (i.e., satellites), ground-truthing (i.e., site-located testing), and a combination thereof.

The verification protocol would enable other New England states to utilize the methodology and realize the value of climate smart commodities produced across the region. In collaboration with the American Green Bank Consortium, the CT Green Bank would work with other New England states to promote climate smart practices and commodity production and monetization, while also working with Farm Credit East to finance equipment and infrastructure to support farmers in their efforts to produce and market climate smart commodities. Direct engagement and ongoing training, knowledge and practice transfer (e.g., monetization of climate smart commodities, issuance of certified climate bonds) will support regional adoption and impact.

2.B. Plan to recruit producers and landowners

Phase I of this project will develop four demonstration facilities that will become the basis of educational programs for farmers and for workforce development for Climate Smart Agriculture (See *Approach: Phase 1; Page 7)*. In addition, incorporating advanced systems such as off-the-shelf liquid cooled LED lighting to capture energy into a geothermal heat sink, plant production systems will be modeled to demonstrate high efficiency practices for maximum yield and minimum inputs. These systems will be used to monitor environmental factors in the pilot farms and track yields and use the information to train other growers. The pilots will also be used to assess heat distribution in greenhouses and identify potential improvements in greenhouse design to achieve heat uniformity or prevent heat loss. We will work closely with pilot participants to train other growers in the region. Extension horticulture greenhouse specialist, Raudales, will advise and train growers on designing closed-loop irrigation systems to reduce water and nutrient runoff.

Table 2. Recruitment Plan: Reaching a third of farms in region for training and adoption by 10% of farms within the region.

Participants	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	**Total**
CT Producers	30	50	50	50	50	**230**
Regional Producers	0	200	200	200	200	**800**
						1030
Adoption Rate						
CT Producers	5	10	15	20	25	**75**
Regional Producers	0	30	60	90	120	**300**
						375

These pilot facilities will be used in educational outreach events to recruit participants. (See Table 2). Burr, Raudales, Kowalski, Ghimire, and a CEA Plant Specialist will communicate with small greenhouse growers through the Northeast Greenhouse Conference email list of >800 individual subscribers, through indirect contact via university and industry partners, and by publishing invitations in trade magazines with readerships (>20K nationwide). The grower communications will include a description of the program, registration information for live sessions via digital platforms, and contact information. In year 1, we aim to recruit 30 Connecticut farmers to engage in our Climate Smart CEA training workshops and receive an energy audit of their facility. Recruitment will leverage Extension's relationships with farmers, and the program will be advertised at professional conferences, and through communication networks maintained

by the CT-DoAg, NRCS, etc. Our goal is having 5 of the 30 participants in the energy audit adopt adoption of CSAF practices. Those wishing to adopt the CSAF practice would apply for grant funding through this program that will be distributed Farm Credit East.

Large-scale pilot implementation: Geremia Greenhouse It is a third-generation family run operation in Wallingford, CT, with over 100 years of growing experience. Geremia is growing over 12 acres indoors with a focus on greens, microgreens, herbs, bedding plants and soon to be tomatoes. Geremia Greenhouse is currently expanding and developing a new greenhouse facility in northwestern Connecticut where hydrogen will soon be a fuel source option. Our partnership with Geremia Greenhouse will showcase the benefits of Climate Smart greenhouse production within a system that also capitalizes on economy of scale within greenhouse systems and the potential growth that small growers can aspire to.

Mid-scale pilot implementation: Mashantucket Pequot tribe hydroponics system Developing a sustainable agricultural enterprise on Tribal land is a major undertaking and a priority for the Mashantucket Pequot Tribe. Since 2020, the Mashantucket Pequot Tribe council has been investing in the production of produce on tribal land to supply their restaurant industry and are in the process of establishing new hydroponic greenhouses. Their reservation and operation represent an ideal opportunity to pilot the integration of climate-smart technology. Our partnership will involve an energy assessment of existing facilities and identifying the technologies enabling reductions of GHG for certification as a Climate Smart Facility, allowing all plant products to receive the Climate Smart label. We will provide training in efficient and effective Climate Smart facility operation. As a partner, the Mashantucket Pequot will showcase their facility to other tribes and will use grant funding to support outreach and education efforts for tribe-to-tribe education, thereby advancing recruitment goals.

Small-scale pilot implementation: UConn Blooms, a University of Connecticut campus greenhouse To support Connecticut's green industry, UConn offers degrees in horticulture and plant science, education through courses such as greenhouse technology, and training for wholesale and commercial businesses. Courses and educational outreach are supported by a small-scale modern greenhouse more typical of a small-scale retail greenhouse. This facility will pilot integration of liquid-cooled LED lighting commercially available through Adaptiiv (see letter of support) and can be linked to a geothermal heat sink which recycles and allows reuse of energy within the same facility. This greenhouse will be subject to our energy audit and process, allowing it to become a pilot facility for the production of Climate Smart green plants sold under the UConn Blooms name, giving recognition to the Climate Smart Commodities label for specialty crops.

UConn's Spring Valley Student Farm (SVSF) is fully operated by student farmers who live on site. The student farmers learn about sustainable community living, organic food growing methods, and the business aspects of how food is harvested, processed, and presented to the UConn dining community. As stewards and ambassadors of the farm, the student farmers support Spring Valley Student Farm as an educational destination where everyone may come together to learn and grow. The SVSF will: serve as the prototype, small scale community to implement the waste to energy technologies; give feedback on technology scale up; provide waste resources for project investigators, and will provide education and workforce development.

Recruitment of participants in years 2-5 will involve New England regional engagement and communications targeting small farmers in New England, of which approximately 2,409 are both

small and growing under protection. Our recruitment goal is 250 farmers per year in years 2-5 who will participate in the energy audit program, a subset of which may adopt Climate Smart practices and achieve the Climate Smart Facility certification. Grant funding prioritizing for historically underserved farmers will be used as a recruiting incentive. To recruit farmers from tribal nations, Whipple (Mashantucket Pequots) will host outreach activities and site visits members of other tribes. The Mashpee Wampanoag Tribe in MA will also participate (letter of support attached).

2.C. Plan to provide technical assistance, outreach, and training

Technical assistance direct to farmers through outreach, training, education, and one-on-one consultation is a focus of this program and builds upon existing strengths. We will provide formal education for farmers and students through a new **Climate Smart Agriculture Certificate**. We will leverage on our existing experience and our prior and current collaboration with the School of Engineering Professional Education Office and the CAHNR Extension program to develop this certificate programs. The online certificate program would provide foundational knowledge in creating profitable, sustainable, and resilient agriculture in New England by developing Climate Smart specific coursework in applied agricultural economics, clean energy for agriculture, and greenhouse and CEA technology. The certificate program would target the professional / farmer audience, be required training for individuals hired as part of this program, and would enable workforce development. The Climate Smart Agriculture Certificate will become a workforce development tool to educate mature farmers, and inspire new ones to build climate smart agriculture environments.

In year 1, we will develop a **hands-on short course** (3-5 days) on CEA, and offer tours to pilot sites. In years 2-5, Raudales and the CEA specialist will host two eight-week training programs on basic and advanced CEA production. The learning objective of the program will be to train growers on how to implement CEA technology for optimal crop production. The team will also provide one-on-one consultation to farmers and coordinate annual workshops.

An 8-week program on monitoring and manipulating environmental conditions to maximize crop production will be offered to 150 farmers per year, who will receive a stipend to reduce cost of attendance. Field days and producers' meetings will be conducted (in-person, virtual, and hybrid) to educate growers on CEA.

2.D. Plan to provide financial assistance for producers to implement CSAF practices

A core feature of this proposed project is the large amount of funding allocated to provide direct support to farmers (Table 3) with grants/loans through a partnership with Farm Credit East as the financial institution and performance-based incentives from monetizing CSAF practices within New England through a partnership with the CT Green Bank. This financial assistance will reduce the cost of acquisition of technology and practices that are part of the recommendation made by the Climate Smart Energy Auditor / Educator hired within each state as part of this program. Acknowledging that financial paperwork can be a significant barrier for farmers, two business planners will assist farmers with preparing financial forms, making the application, and understanding the terms and process for the program. Since Farm Credit East must remain neutral in deciding funding level, the project leadership team will form a committee that establish criteria for eligibility to make funding decisions.

Table 3. Categories of financial support within the requested budget for the project

Direct support to Farmers	$ 36,334,965
Technical Assistance to Farmers	$ 13,774,228
Program Development	$ 2,583,732
	$ 52,692,925

Table 4. Portion of total budget that provides direct suppor to historically underserved farmers in the proposed project

Mashantucket Pequot Tribe	$ 3,200,000
Historically underserved farmers	$ 24,851,224
	$ 28,051,224

Performance-based incentives and income from monetizing CSAF will come from the Connecticut Green Bank. The Green Bank's expertise in investing in projects that support CSAF practices may result in the production of climate smart commodities (e.g., carbon offsets, ecosystem services), that can be sold to consumers in voluntary and/or compliance markets, while providing farmers with additional performance incentives for successfully and continuously implementing such practices. As climate smart commodities (e.g., carbon offsets) are produced (i.e., requiring certification and verification), performance-based incentives will be provided to producers for successfully and continuously implementing CSAF practices.

2.E. Plan to enroll underserved and small producers

Small producers and Tribes in the New England states are the focus of this proposed project, all other producers to be included. Mashantucket Pequot Tribal Department of Agriculture will host field days to showcase their climate-smart greenhouses to facilitate the adoption of Climate Smart technologies and practices by other tribal groups in New England. Within the funding that is allocated for grants/loans, our program has set a goal of earmarking 75% of that to support historically underserved farmers.

3. Measurement / Quantification, Monitoring, Reporting, and Verification Plan

3.A. Approach to greenhouse gas and carbon sequestration benefit quantification

CEA Energy Auditors will be trained and deployed to perform the following services:

Benchmarking: **The goal** of energy and GHG emission benchmarking is to obtain **a quantitative baseline measure** for CSA commodities in this project. This will be done via a *data-driven, systems-oriented, equitable approach* that considers different stages in the commodity supply chain. Benchmarking will be carried out for currently used practices and the proposed new CSA practices. Baseline measures will be tested and verified in the pilot sites. The outcome will be a set of **quantitative standards of CSA energy consumption and GHG emission**. Note that the current COMET Planner tool of USDA does not cover the CSA practices in CEA to be addressed in this project. Our work is intended to fill these gaps in the current tool for CEA. The approach to be used will be aligned with the **USDA's Entity Scale Methods** to ensure scientific rigor and will serve as **a supplement to the COMET Planner tool for climate smart practices in CEA**. The results can also be potentially included into the COMET Farm tool and COMET Energy tool.

Audit: Based on the above benchmarking standards, a **comprehensive and standardized** energy audit procedure for CSAF practices in CEA will be developed along with **training modules** for project participants to conduct the CSAF-focused energy audits to be included the Climate Smart certificate program. Note that while the **COMET Energy** tool offers an annual emission calculator based on the fuel consumption on the farm, it does not provide detailed assessment of the energy usage analysis, recommended actions, and payback periods. To overcome this, we will use the Department of Energy (DOE) MEASUR software and augment it with new calculators specific to CEA operations. Moreover, we will establish an energy/GHG emission assessment database similar to the DOE Industrial Assessment Center Database[1] that summarizes these results to 1) continuously refine the benchmark to be developed in this work; 2) provide reference information for producers and stakeholders who are interested in similar CSA projects.

Certification: To further measure, monitor, and verify CSA practices, periodic certification will be required to receive and maintain the "Climate Smart CEA" label issued to qualified commodities and producers.

[1] https://iac.university/#database

Certification, Verification, and Monitoring of Carbon Offsets: The Green Bank has expertise in multi-partner certification and verification of carbon offsets. A cost-effective monitoring and verification process would be established that could include remote sensing (i.e., satellites), ground-truthing (e.g., site-located soil testing), or a combination thereof.

Certification – It is important to determine the voluntary carbon offset standard to pursue, and then develop a methodology to connect producers to consumers of climate smart commodities. This involves upfront technical assistance articulating the program design (CSAF practices), developing measurement protocols, soliciting public comment, and seeking approval of methodology. This project will develop methodologies for certifying various CSAF practices.

Monitoring – the "rule of thumb" for monitoring is no more than 5% of the value of the incentive. The budget was set with this in mind, and the approach is "to be determined," but will likely include remote sensing (i.e., satellite data) and ground-truthing involving local universities, especially Minority Serving Institutions ("MSI").

3.B. Approach to monitoring of practice implementation

Our Energy Auditors / Educators will record information about participants, the size of their farms and acres. Our farm business planners will also participate in follow-ups to collect data from participating producers. In addition to remote sensing and ground-truthing to measure and verify the impact of climate smart practices on the production of climate smart commodities, basic data collection (e.g., type, weight, time) on production of produce, including end-use consumption or organic waste (i.e., food waste into anaerobic digester) will be tracked in collaboration with farmers participating in the program.

3.C. Approach to reporting and tracking of greenhouse gas benefits

The Zwick Center for Food and Resource Policy will develop a protocol that will be standardized by measurement units, timing, and where necessary, by sampling method, to be used by each farm to track inputs and outputs for each commodity. The tracking protocol will be designed in collaboration with the Energy Auditors/Educators to be easily used on the front end, with data immediately populating a database for real-time analysis. This analysis will: 1) support the development of commodity-specific CEA enterprise budgets that will provide information about inputs and outputs for use well beyond the time frame of the project; 2) provide the basis for input supply chain information; and 3) be a basis for estimating production costs at various scales, as necessary to predict expected longer term financial viability of CEA systems.

3.D. Approach to verification of greenhouse gas benefits

The verification, to be led by SNE-IAC and CT Green Bank, will be based on the metrics to be developed in **3.A**, which will capture the GHG emissions across the entire supply chain, including indirect emissions. This includes a rigorous, data-driven baseline analysis of typical producing practices without CSAF practices (i.e., ***before***) and ***after*** the CSAF practices described in **2.A** are deployed in the pilot sites. **Periodic auditing** and **data collection** (either on-site or remotely) for both direct and indirect emissions (including compounds) will be conducted and **parameters for calculating indirect emissions** will be periodically examined/updated to ensure the *validity* and *reliability* of both the *before* (baseline benchmark) and *after* (with CSAF practices) measures.

3.E. Agreement to participate in the Partnerships Network.

Lead administrator, Everhart will serve as the designated member of the "USDA Partnerships for Climate-Smart Commodities Learning Network." Participation will involve up to two virtual meetings and two in-person meetings a year during the project duration, subject to change.

4. Plan to Develop and Expand Markets for Climate-Smart Commodities from the Project

4.A. Partnerships designed to market resulting climate-smart commodities

CT DoAg launched and operates a marketing campaign for the "CT Grown" brand and has the capacity and structure to market climate smart commodities. This brand reached 10+ million consumers in one year. DoAg will use our current relationships; i.e. CT Farm Bureau Association, New England Food Solutions, CT Northeast Organic Farmers Association, the Diversity, Equity, and Inclusion Working Group members, Southern New England Farmers of Color Collaborative, Healthy PlanEats, etc; to directly engage stakeholders. Our brand campaign is designed to make it easy for partners to use including guidance documents, marketing materials, etc. to ensure adoption in the field. DoAg will post the opportunity through our media contract vendor list, review proposals with the leadership of this group, and contract with the vendor to develop and deploy the campaign. The application also includes funding in the out years to continue to operate the campaign.

4.B. Plan to track climate-smart commodities through the supply chain

The Zwick Center for Food and Resource Policy will track supply chains of inputs, as described above, as well as all post-production inputs and services up to the final consumer. Various supply chains will involve multiple wholesale options for combinations of commodities and consumers, such as necessary for CEA produce to be available through wholesale distributers to regional grocery or other retail outlets, through localized distribution networks to supply school districts and institutional outlets, and direct to consumer options if relevant. We will work with wholesalers and other intermediary firms that support the supply chains for the project period, to determine what scales would be required on the supply and consumer ends, to achieve various price points for transportation and distribution networks.

4.C. Estimated economic benefits for participating producers

The Zwick Center will design and implement a marketing study using industry standard methods to identify and quantify consumer preferences for individual attributes (e.g. CEA grown, locally grown) of commodities grown with CEA technologies. The study will survey consumers in relevant markets, which will help predict market shares for combinations of attributes within each commodity. With this analysis, we would then predict how producers might increase returns by optimizing over the various attributes. We can also predict how consumers would be expected to shift from conventionally grown and distributed to the CEA locally grown and distributed, thus adding to information about GHG reduction as a result of new adoption of the technology.

4.D. Post-project potential

The methods used by the ARE Department and Zwick Center are designed to be scalable to handle some degree of change in input types, amounts, outputs, distribution and other supply chain issues, and as such, should be able to predict a variety of scenarios beyond the five years of the project. Data will be collected and analysis refined over the life of the project, so that predictions of financial viability and overall levels of GHGs reduced will be fed back to all other parts of the project team and participating producers throughout the project, providing information for adjustments. By the end of the five years, the responses to information and adjustments can be used to further improve predictions for scenarios after the life of the project.

With the support of CT Green Bank in collaboration with Farm Credit East, the project can pursue a sustainable pathway to provide ongoing financial support to farmers who successfully implement climate smart practices through (1) the monetization of climate smart commodities, and (2) access to low-cost and long-term capital to finance equipment and critical infrastructure.

Congress of the United States
Washington, DC 20510

May 10, 2022

Secretary Tom Vilsack
U.S. Department of Agriculture
1400 Independence Avenue, SW
Washington, D.C. 20250-9410

Re: Partnerships for Climate-Smart Commodities National Funding Opportunity No. USDA-NRCS-COMM-22-NOFO0001139

To the Honorable Secretary Vilsack:

We write to you in strong support of the proposal submitted by the University of Connecticut, in collaboration with the Connecticut Department of Agriculture (DoAg), Connecticut Green Bank (Green Bank), and Farm Credit East to the United States Department of Agriculture's (USDA) Partnership for Climate-Smart Commodities program.

This proposal, called "Creating Sustainable and Resilient Communities through Climate Smart Controlled Environment Agriculture for Tribes and Small Farms New England," is led by mission-focused, state-affiliated entities which would support New England controlled environment agriculture (CEA). CEA is largely comprised of small farms and poised to supply the food and green industries of the large northeastern metropolitan centers. The proposed effort would contribute to agricultural production and support small farmers largely through piloting the application of multiple energy saving technologies for food production in controlled environments, including the deployment of clean hydrogen fuel cell technology, smart lighting, and efficient heating systems. Establishing CEA standards for lowering greenhouse gas emissions and increasing carbon sequestration, while improving food security and resilience against the impacts of climate change that New England is already experiencing, will allow qualified CEA producers to use a "Climate Smart CEA" label on high-demand, year-round commodities like tomatoes, fruits and vegetables, and nursery plants.

The proposed CEA pilot initiative would develop alongside a workforce development and certification program; a large financial incentives program supported by Farm Credit East, the Green Bank and DoAg; and the integration of Climate Smart CEA qualified facilities from historically underserved Native American and urban agriculture partners. Particularly innovative is the proof-of-concept to both demonstrate the production, certification, verification, and monetization of climate smart commodities (e.g., carbon offsets, ecosystem services) based off of a successful clean energy program and source local fund match from the issuance of Green

Liberty Bonds – the Green Bank's award-winning affordable and accessible citizen investment offering modelled after the War Bonds of the 1940's, which is celebrated for providing everyday citizens access to the green economy.

The Connecticut delegation strongly supports this proposal. Connecticut's high energy costs combined with our small geographic footprint and our scarcity of arable land contributes to limited fresh and local food availability for our communities. Increasing food capacity in Connecticut through piloting CEA technologies and supporting farmers is a valuable activity that will help achieve the goals outlined by the Governor's Council on Climate Change, including reducing greenhouse gas emissions, increasing resilience, improving recreation, ecosystems and water quality, supporting and expanding the food system, and supporting farmers in helping build the green economy.

Thank you for your consideration of this application, and for your recognition of our strong support for this proposal.

Sincerely,

JOSEPH D. COURTNEY
Member of Congress

RICHARD BLUMENTHAL
U.S. Senate

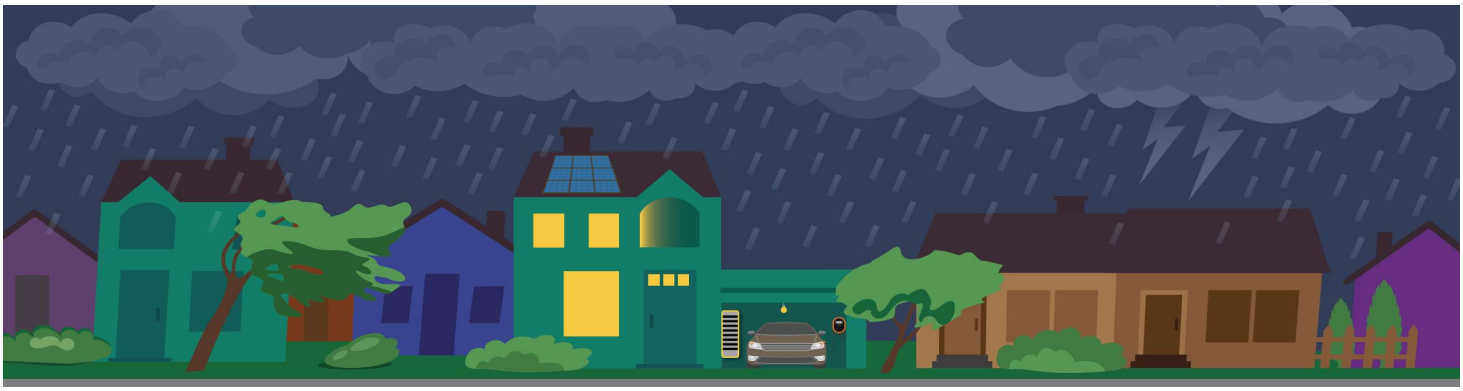
CHRISTOPHER S. MURPHY
U.S. Senate

JOHN B. LARSON
Member of Congress

ROSA L. DELAURO
Member of Congress

JIM HIMES
Member of Congress

JAHANA HAYES
Member of Congress



Community Climate Action - Deploying Climate Smart Technology to Understand and Benefit Human Lives

Topic 1: Innovative Community-Based Energy Resilience Planning

Business Point of Contact	Technical Point of Contact
Brenda Watson Operation Fuel Executive Director brenda@operationfuel.org (860) 243-2345 (ext. 3302) 75 Charter Oak Avenue Suite 2-240 Hartford, CT 06106	Bryan Garcia Connecticut Green Bank President and CEO bryan.garcia@ctgreenbank.com (860) 257-2170 75 Charter Oak Avenue Suite 1-103 Hartford, CT 06106

Team Member Organizations

The following are team member organizations for the Project:

- Clean Energy Group
- Connecticut Department of Energy and Environmental Protection
- Connecticut Institute for Resilience and Climate Adaptation (CIRCA)
- Greater Bridgeport Community Enterprises

Abstract

Community Climate Action - Deploying Climate Smart Technology to Understand and Benefit Human Lives ("the Project") proposes to engage residents in vulnerable communities in Connecticut to better understand the benefits and costs they experience before, during, and after a major weather-related event. The Project will explore how deploying bundled solar PV, battery storage, weatherization, and beneficial electrification can decrease energy burden while increasing energy security for vulnerable communities. The Project will:

- Collect data to develop, test, and validate a framework to value resilience improvements for vulnerable communities;
- Integrate framework into resilience metrics and community planning in locations across Connecticut; and
- Engage vulnerable communities throughout the project, including to deliver action, to understand historic, current, and future negative impacts during sustained outages due to extreme events.

Across the country, through ratepayer incentive programs, there are billions of dollars a year in incentives being provided to customers to adopt clean energy technologies. The lens of cost-effectiveness tests is standard practice.[i] The Project will contribute to the continuous improvement of such practice by better valuing true costs and benefits with an emphasis on the importance of solar PV integration with other technologies to increase their adoption.

Background

On Thursday, August 19, 2021, the media announced that Tropical Storm Henri ("Henri") could impact New England as a Category 1 hurricane. In response to the announcement, on Saturday, August 21, Eversource Energy reported that between 50 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 declared an Emergency Response Plan. 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.

Despite the predictions, Henri resulted in lost power for 60,000 customers in Connecticut – far less than the 50-69% of initial utility projections. This over-response to Henri was likely due to the devastating impacts of Tropical Storm Isaias a year prior (800,000 customers lost power) which led to the passage of Public Act 20-05, colloquially known as the "Take Back Our Grid Act!" The Act established, among other actions, a framework for performance-based regulation, created a microgrid and resiliency grant program, provided credits for outages and compensation for lost food and medicine, and defines resilience[ii] and vulnerable communities.[iii]

As a "Solar with Justice" state,[iv] Connecticut has seen the deployment of rooftop solar PV decrease energy burden for vulnerable communities, and now seeks to integrate those systems with battery storage, beneficial electrification, and weatherization (i.e., together the "Proposed Technology") to further decrease energy burden while increasing energy security for vulnerable communities. While there is an increasing interest in deploying these technologies, both individually and in concert, the cost efficiency tests and resiliency metrics currently used to value these investments are not informed by the vulnerable communities they serve.

In recent years, Connecticut has experienced rain bombs, heat domes, polar vortexes, and other weather-related phenomenon induced by climate change that have caused grid outages and temperature-related emergencies. Supporting bottom-up, grassroots efforts to develop metrics for resiliency can better quantify the value and support the widespread adoption of the Proposed Technology which in turn can support vulnerable communities to better prepare for, respond to, and recover from gray-sky (e.g., Henri) and dark-sky (e.g., Isaias) events, while benefitting ratepayers and society during blue-sky days.

Technology Description

Proposed Technology

This project proposes to co-deploy solar PV, battery storage, beneficial electrification, and weatherization as a bundled "Proposed Technology" [v] to support vulnerable communities. In Connecticut "soft cost" reduction strategies (i.e., innovative financing,[vi] customer acquisition, efficient permitting and zoning practices) have resulted in increased solar PV deployment and lead to increased and more affordable access to solar PV for single family homeowners and decreased energy burden for vulnerable communities.[vii] Translating this success to the Proposed Technology can further decrease energy burden during blue-sky days and increase energy security during gray- and dark-sky days.

Connecticut has the highest watts per capita deployment of residential solar PV in the entire Northeast region of the United States[viii] – which amounts to approximately 55-60 MW of deployment per year or about 7,000 projects. In 2022, Connecticut transitioned from net metering to a tariff-based form of compensation – transitioning from the Residential Solar Investment Program ("RSIP") administered by the Connecticut Green Bank ("Green Bank") from 2012 through 2021 to Residential Renewable Energy Solutions ("RRES") administered by the electric distribution companies ("EDCs") starting in 2022. RRES provides additional incentives to vulnerable communities (i.e., low-income households, homes located in a distressed community,[ix] or affordable housing). The integration of battery storage through Energy Storage Solutions ("ESS"),[x] incentives for beneficial electrification,[xi] and on-bill financing for weatherization[xii] with solar PV provide a unique and innovative opportunity to reduce adoption cost for the Proposed Technology for vulnerable communities.

The basic operating principle of the Proposed Technology is simple, when the sun shines it enables solar PV to produce power that can be simultaneously consumed by onsite load of a home (e.g., heating and cooling, lighting) and/or stored in a battery to be dispatched at a later time when the utility or homeowner needs it to reduce peak demand or for emergency back-up power, respectively. By combining solar PV and storage with weatherization and beneficial electrification, we can ensure that customer backup power will be available during storms and power essential appliances for longer.

Target Level of Performance

The Project seeks to deploy the Proposed Technology in several target distressed communities in Connecticut, including several cities (i.e., Bridgeport, Hartford, and Waterbury) and a rural region (i.e., Windham County) providing the benefits of decreasing energy burden and increasing energy security – see Table 1.

Table 1. Customer Benefits from Each Aspect of the Proposed Technology

Customer Benefits	Solar PV	Battery Storage	Weatherization	Beneficial Electrification
Reduce Energy Burden	x		x	x
Increase Energy Security		x	x	x

The Proposed Technology bundles commercially available technology to deploy a unique resilience investment in vulnerable communities to ensure that the customer benefits are realized during blue-sky, gray-sky, or dark-sky days. The Project proposes to deploy the Proposed Technology in 500 households in the target vulnerable communities.

Current State-of-the Art Resilience Metrics

Distinguishing between blue-sky, gray-sky (i.e., relatively frequent storms), and dark-sky (i.e., relatively rare and devastating storms) conditions is important when evaluating the reliability and resilience of a system.[xiii] The EDCs have Emergency Response Plans that categorize Major Storms by intensity level (i.e., Event Level) ranging from 5 to 1, with Event Level 1 being the most destructive. In Connecticut, for the purposes of Reliability and Resiliency Frameworks, gray-sky conditions are referred to Major Storms classified as an Event Level 5 or 4; while dark-sky conditions are referred to Major Storms classified as an Event Level 3, 2, or 1.[xiv] Minimizing the frequency and duration of outages due to Major Storms, by measuring the System Average Interruption Frequency Index ("SAIFI") (i.e., average outage frequency on an EDCs system) and the System Average Interruption Duration Index ("SAIDI") (i.e., average outage duration experienced by all customers on an EDCs system), is the state-of-the art for electric grid resiliency, but that is changing given the recognition of the need to

better understand and value such outage impacts on the human lives of customers. This "top down" measurement perspective of an EDCs use of SAIFI and SAIDI has shortcomings, limitations, and challenges, including:

- **Lacks Customer Perspective** – inability to measure the true impacts of power outages on human lives (e.g., loss of food, medication), especially vulnerable communities;
- **Inappropriately Values Costs and Benefits** – by not recognizing the true costs experienced by customers, especially those in vulnerable communities, or valuing the true benefits of various technologies (e.g., cool inside temperatures during outside heatwave), investments in resilience by the EDCs may "miss the mark" in terms of what is important for society and the technology measures to solve them; and
- **Performance-Based Regulation** ("PBR") – while PBR leads regulators to develop methodologies that ensure and incentivize cost-effective reliability program development and implementation by the EDCs, it has the potential to miss the needs of customers, especially vulnerable communities.

As a result, more customer-based resiliency metrics are being developed.[xv] This alphabet soup of resiliency metrics means nothing to the resident living and working in a vulnerable community who has to prepare for, adapt to, and recover from a looming gray-sky or dark-sky event. There are limitations to using conventional cost-effectiveness test by regulators and EDCs when it comes to resiliency, as they may inadequately value the costs and benefits of customers experiencing an outage. The successful deployment of the Proposed Technology in households in vulnerable communities, through the Proposed Project, will enable regulators, EDCs, public policymakers, technology manufacturers, contractors, and others to better understand the true costs and benefits of such technologies in ensuring that our electric grid is becoming increasingly more resilient, especially from the perspective of those who need it the most, vulnerable communities.

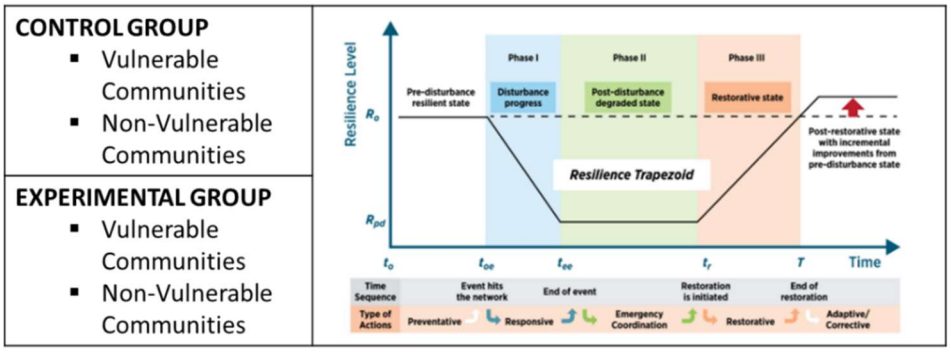
Potential Impact of the Proposed Project

Community Climate Action - Deploying Climate Smart Technology to Understand and Benefit Human Lives ("the Project") proposes to engage residents in vulnerable communities (i.e., Bridgeport, Hartford, and Waterbury) to better understand the benefits and costs they experience before, during, and after a major weather-related event (e.g., rain bomb, heat dome, polar vortex) as a result of deploying the Proposed technology – see Figure 1. The Project will:

- Collect data to develop, test, and validate a framework to value resilience improvements for vulnerable communities, looking at it both from a 'top-down' and a 'bottom-up' approach;
- Integrate framework into resilience metrics and community planning in locations across Connecticut; and
- Engage vulnerable communities throughout the project, including to deliver action (i.e., Experimental vs. Control Groups) to understand historic, current, and future negative impacts during sustained outages due to extreme events.

Across the country, through ratepayer incentive programs, there are billions of dollars a year in incentives being provided to customers to adopt clean energy technologies. The lens of cost-effectiveness tests is standard practice.[xvi] The Project will contribute to the continuous improvement of such practice by better valuing true costs and benefits with an emphasis on the importance of solar PV integration with other technologies to increase their adoption.

Figure 1. Proposed Framework of Time Series Engagement of Control vs. Experimental Groups in the Proposed Project



Key Technical Risks and Issues
The following are the key technical risks and issues associated with the Project:

- **Control and Experimental Groups** – identifying participants in the control (i.e., no Proposed Technology) and experimental groups (i.e., Proposed Technology) willing to engage in the Project over time (i.e., achieving target participation of 500 households);
- **Proposed Technology Deployment** – having a representative sample within the experimental group that is significant enough to provide useful feedback;
- **Occurrence of Gray and Dark-Sky Events** – assuming that such events will occur over the Project period to understand the negative impacts on participants; and
- **Research Design** – working with academic partners to design an appropriate research design that is robust enough to enable scalability (e.g., benefit-cost analysis application).

Impact of EERE Funding
EERE funding is essential to the Project. The impact of such funding would

1. **Enable Participation from Community-Based Organization** – enable a domestic non-profit (i.e., Operation Fuel) to lead the project from inception to completion and involve students from a Minority-Serving Institution (i.e., Housatonic Community College);
2. **Proposed Technology, Project, and Objective Congruence** – Connecticut's energy burden and security policies through solar PV integration with other technologies is consistent with DOE-EERE-SETO expertise and the Biden Administration's goals; and
3. **Technical Assistance is Essential** – EERE's technical and funding assistance through RACER is essential to engaging vulnerable communities in the understanding, planning, and processes for delivering an equitable clean energy future for climate protection.

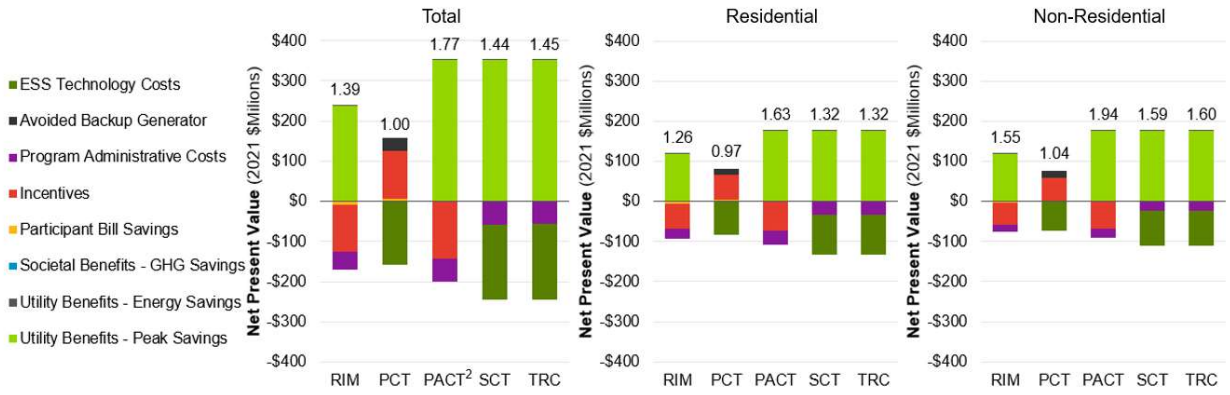
Adequate Equipment and Facilities

The PI and the Partners have adequate equipment and facilities to support the Project. The Green Bank intends to procure technical assistance to support the development of a modified benefit cost analysis based on the findings generated in this project.

Supplemental Information

It should be noted that the Green Bank commissioned a willingness to pay study for battery storage for LMI and non-LMI customers,[xvii] but also a replicable and scalable BCA with Justice 40 deployment as the priority – see Figure 2.

Figure 2. Benefit Cost Analysis for Energy Storage Solutions for Residential and Non-Residential Participants



Principal Investigator

The Principal Investigator ("PI") for the Project is Brenda Watson, Executive Director of Operation Fuel

Prior Experience

Brenda Watson, Operation Fuel's Executive Director, is driving change in the social and structural causes of home energy affordability. Watson's professional career spans 20 years in the areas of energy affordability, transportation planning, municipal government, community organizing, and program planning, as well as development and fundraising. She has led Operation Fuel – Connecticut's year-round emergency utility and energy assistance nonprofit – since 2018; prior to that, she served as its director of community programs for eight years. Under her leadership, Operation Fuel has evolved from a winter heating program, to an ALL season, ALL Energy and Water resources program. Diving deeper into sustainable solutions for our CTs vulnerable, her recent efforts have led to several significant developments that will positively benefit low- and moderate-income CT residents: the state's first online energy and utility assistance application portal, the expansion of Operation Fuel financial assistance to CT's water utility consumers, partnering with the CT Greenbank to conduct market research and data collection for the State's Battery Storage Program and partnering with Eversource and Avangrid companies, to enroll low and moderate income customers into the Shared Clean Energy Facilities Program.

Operation Fuel developed a Battery Storage Marketing and Research program. Program is designed to empower vulnerable communities to consider energy storage technologies as a pathway towards energy resiliency.

Watson worked with Eversource and Avangrid to develop the SCEF program, 21-08-04 On bill credits to qualified LMI customers > equal to $0.025 multiplied by their average monthly usage for twenty years, $17.50 credit for 20 years.

Watson also developed the Better Homes and Buildings Program to mitigate the health and safety barriers that prevent households from getting weatherization. The goal is to expand the program to address environmental issues such as residential flooding, wastewater infrastructure, and install solar hot water heaters.

Watson serves on the Connecticut Green Bank Board of Directors, The Energy Efficiency Board, CT Green Building Council, and Water Planning Council Advisory Committee, and she previously served on the executive committee of the National Energy & Utility Affordability Coalition. Watson is also a founding member of the Bridgeport Regional Energy Partnership, a mix of community advocates, commercial and industry representatives, working together to bring Justice40 investments to the Bridgeport region.

Team Partners

The Team Partners include:

- Bryan Garcia – President and CEO of the Connecticut Green Bank Bryan.garcia@ctgreenbank.com
- Todd Olinsky-Paul – Senior Project Director for the Clean Energy Group Todd@cleanegroup.org
- Shubhada Kambli – Director of Building and Transportation for DEEP Shubhada.Kambli@ct.gov
- John Truscinski – Director of Resilience Planning for the Connecticut Institute for Resilience and Climate Adaptation john.truscinski@uconn.edu
- Adrienne Farrar Houel – President and CEO of the Greater Bridgeport Community Enterprises houel@greenteambpt.com

[i] https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/

[ii] "Resilience" means the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from deliberate attacks, accidents or naturally occurring threats or incidents, including, but not limited to, threats or incidents associated with the impacts of climate change

[iii] "Vulnerable communities" means populations that may be disproportionately impacted by the effects of climate change, including, but not limited to, low and moderate income communities, environmental justice communities pursuant to section 22a-20a, communities eligible for community reinvestment pursuant to section 36a-30 and the Community Reinvestment Act of 1977, 12 USC 2901 et seq., as amended from time to time, populations with increased risk and limited means to adapt to the effects of climate change, or as further defined by the Department of Energy and Environmental Protection in consultation with community representatives.

[iv] LMI communities and communities of color deploying solar PV at or beyond parity compared to non-LMI and White families

[v] DE-FOA-0002597 "Renewables Advancing Community Energy Resilience (RACER)" indicates that the Office of Energy Efficiency and Renewable Energy's Solar Energy Technologies Office (SETO) supports energy research, development, demonstration, and technical assistance in five areas – **photovoltaics (PV)**, concentrating solar-thermal power ("CSP"), **systems integration**, manufacturing and competitiveness, and **soft costs** – to improve the affordability, reliability, and domestic benefit of solar technologies on the electric grid.

[vi] "Unlocking Solar for Low- and Moderate-Income Residents: A Matrix of Financing Options by Resident, Provider, and Housing Type" by Jeffrey J. Cook and Lori Bird of the National Renewable Energy Laboratory (January 2018)

[vii] Per Pubic Act 20-05, "vulnerable communities" means populations that may be disproportionately impacted by the effects of climate change, including, but not limited to, low and moderate income communities, environmental justice communities pursuant to section 22a-20a, communities eligible for community reinvestment pursuant to section 36a-30 and the Community Reinvestment Act of 1977, 12 USC 2901 et seq., as amended from time to time, populations with increased risk and limited means to adapt to the effects of climate change, or as further defined by the Department of Energy and Environmental Protection in consultation with community representatives.

[viii] Solar Energy Industry Association's Quarterly Market Update from 2014 through 2021

[ix] Designated by the Department of Economic and Community Development, distressed communities are the state's most fiscally and economically distressed municipalities and are used by state agencies to target funds for needs which may include housing, insurance, open space, brownfield remediation, and economic development programs, among others.

[x] Incentive program co-administered by the Green Bank and EDCs to deploy 580 MW of behind-the-meter battery storage combining an upfront declining incentive block structure with an ongoing performance-based incentive to reduce peak demand and increase resilience. ESS has established a target for no less than 40 percent of installations to occur in low-income households, distressed communities, and affordable housing.

[xi] Instant discounts of $250-$500/ton and mail-in rebates $1,000/ton for air source heat pumps

[xii] 0% interest rate repaid over 3 years for up to $3,000

[xiii] Over the past 20-years, there have been 150 Major Storms experienced in Eversource Energy's service territory. During these events, 13.5 million customer outages and restorations occurred. Of those events, only 9 of them (i.e., 6%) accounted for 6.2 million outages (i.e., 46%). Even more telling is that four (4) individual events (i.e., Hurricane Irene in 2011, Superstorm Sandy in 2012, October Nor'Easter in 2012, and Tropical Storm Isaias in 2020) accounted for 4.4 million customer outages (i.e., nearly 33%) since 2002.

[xiv] "Notice of Issuance of Straw Reliability and Resilience Program Framework and Request for Comments" by the Public Utilities Regulatory Authority in Docket No. 17-12-03RE08 (May 2, 2022)

[xv] Customers Experiencing Multiple Interruptions ("CEMI"), Customers Experiencing Long Interruption Durations ("CELID"), Customers Experiencing Multiple Sustained Interruptions and Momentary Interruption Events ("CEMSMI"), Customers Experiencing Multiple Momentary Outages ("CEMM"), Momentary Average Interruption Frequency ("MAIFI").

[xvi] https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/

[xvii] https://www.ctgreenbank.com/wp-content/uploads/2020/08/PURA-Docket-No.-17-12-03RE03-%E2%80%93-Solarize-Storage-Proposal-from-the-Green-Bank.pdf (pp. 129-145)

CONNECTICUT GREEN BANK SM

75 Charter Oak Ave
Suite 1 - 103
Hartford, CT 06106

700 Canal Street, 5th Floor
Stamford, CT 06902