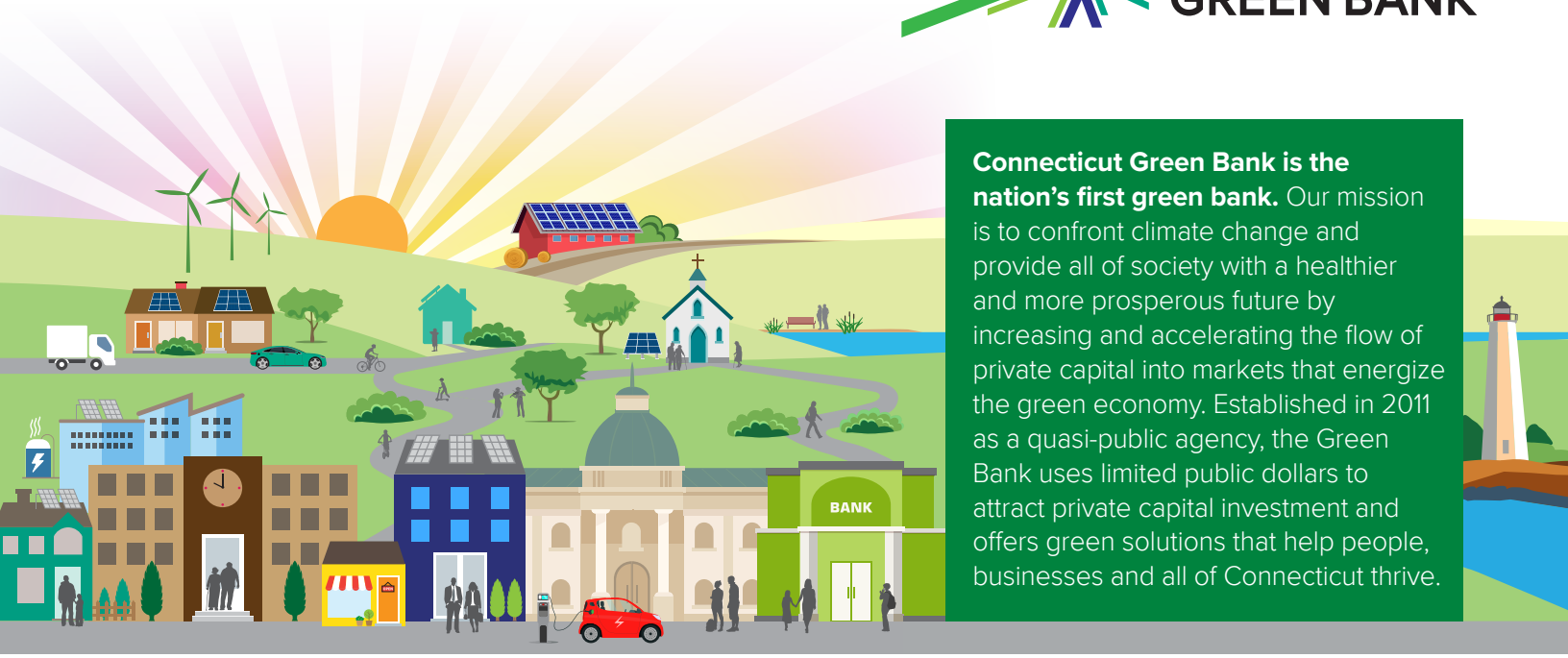
CONNECTICUT GREEN BANK

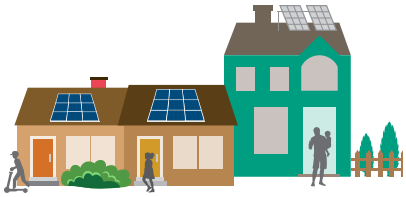


Connecticut Green Bank is the nation's first green bank. Our mission is to confront climate change and provide all of society with a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy. Established in 2011 as a quasi-public 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

CONNECTICUT GREEN BANK

Decennial Societal Impact Report

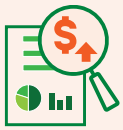
FY12 FY21

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

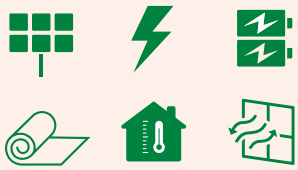
ENERGY

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

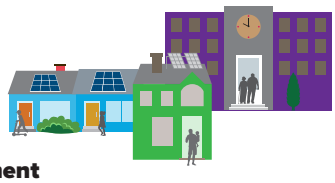
OR

2.1 MILLION passenger vehicles driven for one year

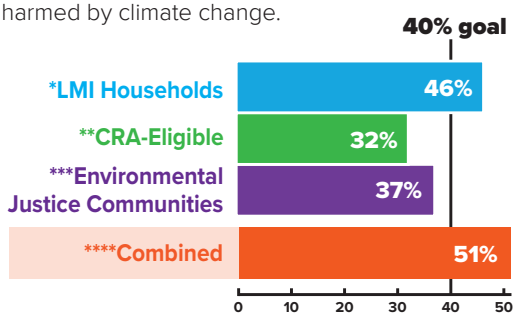
PUBLIC HEALTH The Green Bank has improved the lives of families, helping them avoid sick days, hospital visits, and even death.

$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.

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

Environment

ARRA funds helped to avoid **596,382 tons of CO_2,** which is equal to:

8.9 million tree seedlings grown for 10 years

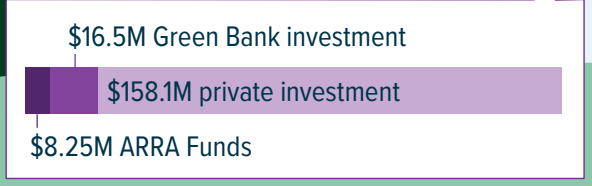
removing 117,663 passenger cars from the road for one year

Economic Development

The Green Bank turned $8.25 million of federal funds

$8.25 million → $174.6 million

into **$174.6 million in investments**



The Green Bank supported the creation of **2,176 job-years of employment** through the use of ARRA funds.

Equity

38% of **investments**

53% of **projects**

were made in **vulnerable communities**

$38.8–87.8M of lifetime public health value created

9,434 families supported

The Green Bank targets 40% of investment and benefits into vulnerable communities

Energy

The use of ARRA funds supported

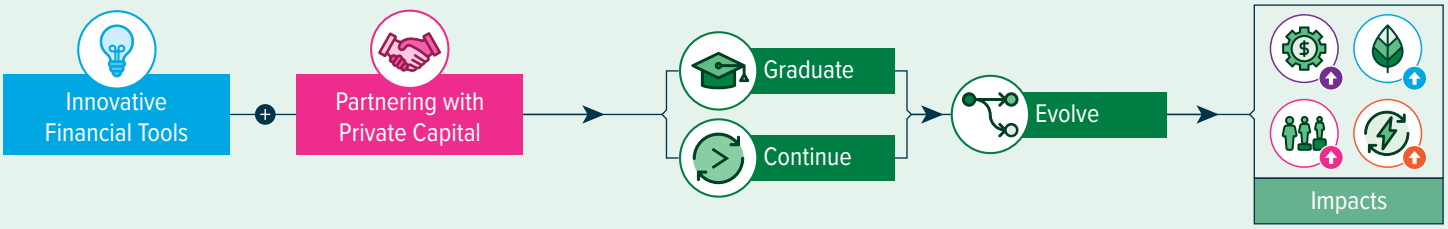
- Deployment of over **24 megawatts** of **clean energy**
- **Lifetime savings of over 3.4 million MMBTUs** through energy efficiency projects, including:
  - Solar panel installation
  - Insulation upgrades
  - Heating and cooling system upgrades

$138M in lifetime energy savings generated

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.

845 Brook Street, Rocky Hill, CT 06067
T 860.563.0015
ctgreenbank.com

CONNECTICUT GREEN BANK

Public Comments of the Connecticut Green Bank
Proposed Changes to the Community Reinvestment Act Regulations
April 8, 2020

Department of Treasury
Office of the Comptroller of the Currency
12 CFR Parts 25 and 195
Docket ID OCC-2018-0008
RIN 1557-AE34
Chief Counsel's Office
Attention: Comment Processing
400 7th Street, SW
Suite 3E-218
Washington, DC 20219

Federal Deposit Insurance Corporation
12 CFR Part 345
RIN 3064-AF22
Robert E. Feldman
Executive Secretary
Attention: Comments
550 17th Street, NW
Washington, DC 20429

As the nation's first state level "green bank," the Connecticut Green Bank ("Green Bank")[1] *leverages the limited public resources it receives to attract multiples of private investment to scale up clean energy deployment. Since its inception in July of 2011, the Green Bank has mobilized over $1.6 billion of investment into Connecticut's clean energy economy at nearly a 7 to 1 leverage ratio of private to public funds, supported the creation of over 20,000 direct, indirect and induced jobs, reduced the energy burden on over 40,000 families and businesses, deployed nearly 360 MW of clean energy, helped avoid over 5.8 million tons of CO_2 emissions over the life of the projects, and generated nearly $90 million in individual income, corporate, and sales tax revenues to the State of Connecticut through June of 2019.*

INTRODUCTION

The Connecticut General Assembly ("CGA") has found and determined that stimulating, supporting, and increasing the use of clean energy,[2] investments in clean energy projects

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[1] The Connecticut Green Bank is not a bank – it is a quasi-public agency of the State of Connecticut. The state has established a number of quasi-public agencies that are not departments, institutions or agencies of the State. They are, however, bodies politic and corporate that constitute public instrumentalities and political subdivisions of the State and whose exercise of authority granted to them is deemed to be the performance of an essential public and governmental function. These organizations provide a wide range of services that might otherwise be provided directly by the State.

[2] CGS 16-245n(a) – for the purposes of the Green Bank, "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 greenhouse gas 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

and sources, demand for clean energy, the development of technologies that support clean energy, and the development of the state's energy-related economy are important state policy objectives. To achieve those objectives, the CGA created the Green Bank.[3]

The mission of the Green Bank is 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."[4] With this mission as its focus, the Green Bank has the following three (3) 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 by making the benefits of the green economy inclusive and accessible to all individuals, families, and businesses; and

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

The Green Bank works with private financial institutions (including regulated financial institutions – banks) to achieve its mission and goals, and importantly, to ensure that low-to-moderate-income ("LMI") communities and small businesses have access to capital in order to benefit from the green economy. Since its inception, the Green Bank has enabled nearly a half-a-billion-dollars of investment in communities that are eligible for CRA (i.e., below eighty percent of Area Median Income ("AMI")) – see Table 1.

Table 1. Public and Private Investment ($'s MM) in Clean Energy by AMI in Connecticut from FY12-FY19

Fiscal Year	80% or Below AMI	Over 80% AMI	Total Investment	% Investment 80% or Below
2012	$0.3	$9.6	$9.9	3%
2013	$76.2	$35.2	$111.4	68%
2014	$16.9	$101.3	$118.2	14%
2015	$72.7	$288.8	$361.5	20%
2016	$76.9	$265.9	$342.8	22%
2017	$90.1	$143.1	$233.2	39%
2018	$91.2	$187.3	$278.5	33%
2019	$108.4	$226.1	$334.6	32%
Total	**$485.1**	**$1,147.3**	**$1,632.4**	**30%**

The Green Bank has worked with banks on a number of essential critical clean energy infrastructure projects including community development loans for:

- Combined heat and power project in Bridgeport with KeyBank[5] that serves as a microgrid for the community;

related storage, distribution, manufacturing technologies or facilities and any Class I renewable energy source, as defined in section 16-1.

[3] CGS 16-245n

[4] https://ctgreenbank.com/wp-content/uploads/2019/07/Comprehensive-Plan_FY-2020-and-Beyond_Final__071819.pdf

[5] Regulated by the OCC

- Food waste to energy project in Southington with Peoples United Bank[6] that serves as an important energy and environmental waste management project for the state;

- Wind power project in Colebrook with Webster Bank[7] providing zero emission energy and economic development to the community; and

- Fuel cell park in Bridgeport with Fifth Third Bank[8] and Liberty Bank[9] to provide high reliable and clean power to the electric grid through the use of a cutting-edge technology manufactured in the state.

Beyond these projects, the Green Bank has also worked with banks on a number of essential clean energy infrastructure programs and products including, but not limited to the following consumer loans and community development loans, investments, and services:

- Solar lease and power-purchase-agreement ("PPA") financing with KeyBank, US Bank,[10] and Webster Bank for residential and commercial end-use customers to reduce the burden of energy costs while improving the reliability of the electric grid;

- Clean energy, including health and safety measures through consumer loans for homeowners through eleven (11) banks, including community banks and credit unions, that help families reduce the burden of energy costs, make needed repairs to their home while increasing the value of their property;

- Energy efficiency improvement "on bill" financing with Eversource Energy and Amalgamated Bank[11] for small business customers, including essential community facilities, to reduce the burden of energy costs while improving the reliability of the electric grid; and

- Property improvement services through the Commercial Property Assessed Clean Energy Program ("C-PACE"), including thirty-six (36) banks that are enabling the property owner to understand how to lower their operating expenses from energy by deploying clean energy, and then providing consent for investment in such improvements to be senior to their mortgage on the property because the savings are greater than the investment (i.e., deliver positive cash flow to the business).

Leveraging public funds to increase private investment in clean energy generates tax revenues, creates jobs, reduces the burden of energy costs on families and businesses, protects the environment, and improves public health – see Green Bank Impact Report attached.

Investment in essential clean energy infrastructure – through our families and businesses and through public-private partnerships – strengthens communities.

OVERVIEW OF PROPOSED CHANGES TO CRA

[6] Regulated by the OCC
[7] Regulated by the OCC
[8] Regulated by the Federal Reserve System
[9] Regulated by the Connecticut Department of Banking
[10] Regulated by the OCC
[11] Regulated by the FDIC

With the Green Bank's focus on increasing and accelerating private capital investment in Connecticut's green economy, with an emphasis on underserved populations (e.g., LMI families, communities of color, small businesses, farms, etc.), the Community Reinvestment Act ("CRA") serves as a federal public policy tool to connect public and private interests. In fact, currently, CRA has specifically recognized community development loans and investments in clean energy as qualifying activities:

> "…borrowers to finance renewable energy, energy-efficient, or water conservation equipment or projects that support the development, rehabilitation, improvement or maintenance of affordable housing or community facilities…"[12]

And, looking ahead into the future, based on the recent Notice of Proposed Changes to the CRA, the Office of the Comptroller of the Currency ("OCC") and the Federal Deposit Insurance Corporation ("FDIC") continue to express support for clean energy as a qualifying activity:

> "The rehabilitation, improvement, or construction of affordable housing, essential community facilities, or essential infrastructure may include (1) renewable energy, energy-efficiency, or water conservation equipment or…(2) the abatement or remediation of, or other actions to correct, environmental hazards, such as lead-based paint, lead pipes,(such as those used in antiquated water supply systems), asbestos, mold, or radon that is present in housing…"[13]

The OCC and FDIC are proposing changes in the following areas of CRA:

- **Qualifying Activities** – clarifying which activities qualify for CRA credit;
- **Assessment Areas** – updating where activities qualify for CRA credit;
- **Performance Scoring** – creating a more transparent and objective method for measuring CRA performance; and
- **Data Collection and Reporting** – providing for more transparent, consistent, and timely CRA-related data collection, record-keeping, and reporting

Given these proposed changes, and focus of the Green Bank, the Green Bank offers the following public comments:

1. **Role of the States** – like OCC, FDIC and the Federal Reserve System, there are state regulators (e.g., Connecticut Department of Banking) that implement CRA for state-chartered banks and community credit unions. Since states better understand the needs of their local economies, they should have a role in assisting with and offering their perspective towards federal CRA implementation (e.g., local determination of national qualifying activities).

[12] Federal Register Vol. 81 No. 142 of July 25, 2016 (48529)
[13] RIN 3064-AF22 (p. 25)

2. **Deserts vs. Hotspots** – the goal of any changes to CRA regulations should emphasize the need to prioritize increasing investments in underserved segments of the market, including LMI families, communities of color, small businesses, and farms. Equitable distribution of investment by banks in these underserved segments of the market – especially reducing CRA deserts – through "greenlining" and not "redlining" should be the priority. For example, the following qualifying activity feels like it is "redlining" – "an investment in a project in a high-cost area where 30 percent of the rental units are set aside as affordable to middle-income individuals through local inclusionary zoning."[14] It could be "greenlining" if "middle-income" were changed with "low-to-moderate-income".

3. **Long-Term Commitment** – with clean energy, as with other types of economic development investments, the long-term commitment by banks to invest in underserved communities must be encouraged – certainly encouraged beyond the CRA assessment periods. For example, providing banks more incentive to provide long-term loans for clean energy (e.g., with up to 20-year terms), that extends through its useful life as an asset, will ensure that the economic benefits of those investments (e.g., energy savings) inures to the borrower. Perhaps this is an area (i.e., longer term maturities of loans) where "bonus" consideration in CRA credit could be included.

4. **Smaller Loans and Investments** – with clean energy, there are many transactions that are small due to the size of a project (e.g., $10,000 energy efficiency project on a nonprofit or small business). Regulated financial institutions should be encouraged to invest directly in or through a securitized pool of loans that aggregate small projects. Perhaps this is another area where "bonus" consideration in CRA credit could be included.

The Green Bank sees the current CRA as providing an opportunity for increased investment in clean energy in underserved communities through public-private partnerships. Any changes to the CRA should seek to increase this investment in order to strengthen communities through the modernization of the essential clean energy infrastructure necessary for our families and businesses to thrive and our green economy to grow.

GREEN BANK RESPONSE AND RECOMMENDATIONS TO SPECIFIC QUESTIONS

From the Green Bank's perspective, we would like to specifically comment on and make recommendations for several of the questions raised in the notice with respect to qualifying activities,[15] assessment areas,[16] and data collection and reporting[17] – we do not have comments on performance scoring.

Qualifying Activities

The Green Bank would like to offer comments and recommendations on four (4) of the ten questions raised under qualifying activities, including:

1. *Are the proposed criteria for determining which activities would qualify for credit under the CRA sufficiently clear and consistent with the CRA's objective of encouraging banks to conduct CRA activities in the communities they serve?*

[14] Federal Register / Vol. 85 No. 6 / Thursday, January 9, 2020 / Proposed Rules (p. 1231)
[15] Federal Register / Vol. 85 No. 6 / Thursday, January 9, 2020 / Proposed Rules (p. 1216)
[16] Federal Register / Vol. 85 No. 6 / Thursday, January 9, 2020 / Proposed Rules (p. 1217)
[17] Federal Register / Vol. 85 No. 6 / Thursday, January 9, 2020 / Proposed Rules (p. 1228)

In terms of "retail loans," the definition of an "other consumer loans" can be misconstrued as broad and vague. Perhaps building a list of "qualifying other consumer loans" would be useful guidance to banks. For example, an "energy improvement loan" that finances insulation in walls and ceilings, efficient appliances and windows, electric vehicle recharging outlets, solar power, and other clean energy technologies, would be on the "other consumer loans" list.

In terms of "community development" activities, there are two (2) key criteria that provide a useful guide with nearly no ambiguity in its interpretation with respect to the Green Bank's interests in advancing clean energy and the green economy, including:

- **Essential Infrastructure** – financing for "essential infrastructure that benefits or serves LMI individuals or areas of identified need," is clearly articulated when it includes "…(1) renewable energy, energy efficiency, or water conservation equipment or projects associated with affordable housing, essential community facilities, or essential infrastructure or (2) the abatement ore remediation of, or other actions to correct, environmental hazards, such as lead-based paint, lead pipes (such as those used in antiquated water supply systems), asbestos, mold, or radon that is present in housing, facilities, or site where the housing or facility is located." From the Green Bank's perspective, based on the proposed CRA changes, clean energy would be considered "essential infrastructure".

- **Government Programs** – financing for "government programs, projects, or initiatives that partially or primarily benefit LMI individuals (e.g., a program that supports urban renewal), small businesses, small farms, and areas of identified need" recognizes the importance of state and local governments in determining which programs, projects or initiatives should be determined to be qualifying activities. From the Green Bank's perspective, based on the proposed CRA changes, local and state governments can determine what is a federal qualifying activity.

From the Green Bank's perspective, with respect to retail loans, "other consumer loans" can be interpreted as vague unless a growing list of examples is produced, and in terms of community development activity, "essential infrastructure" and "government programs" are sufficiently clear and consistent with CRA objectives of encouraging banks to conduct CRA activities involving clean energy investment.

2. *Are there other criteria for determining which activities would qualify for CRA credit that the agencies should consider?*

In terms of adding "essential community facilities," such as schools and hospitals that benefit or serve LMI individuals, LMI census tracts, or other targeted areas of need as a criteria for a CRA-qualifying activity, the Green Bank would suggest:

- **LMI Individuals and Communities as "Primary" Beneficiaries** – that such "essential community facilities" primarily benefit LMI individuals (e.g., proportionally serve LMI more than non-LMI individuals) and LMI census tracts, as opposed to simply serving LMI individuals and LMI census tracts. Not only will this serve to revitalize and stabilize targeted areas, but more importantly to strengthen targeted communities;

- **Clean Energy Infrastructure** – enable investments in microgrid infrastructure that serves critical facilities, including "police station, fire station, water treatment plant, sewage treatment plant, public shelter or correctional facility, any commercial area of a municipality, or a municipal center"[18] in order to stabilize access to power in a community;

- **Environmental Infrastructure** – enable investments in critical environmental infrastructure including structures, facilities, systems, services and improvement projects related to water, waste and recycling, agriculture, land conservation, parks and recreation, and other environmental infrastructure; and

- **Resiliency Infrastructure** – enable investments in resiliency infrastructure that provides a community the "ability to anticipate, prepare for, and adapt to changing climate conditions and withstand, respond to, and recover rapidly from climate disruptions"[19] in order to stabilize and revitalize the community after a hurricane, snow-storm, or other weather or natural disaster-related event.

Essential infrastructure includes clean energy, environmental, and resiliency infrastructure that help revitalize, stabilize, and strengthen our communities.

5. *The agencies plan to publish the illustrative list on their websites and to update the list both on an ongoing basis and through notice and comment process. Should the list instead be published as an Appendix to the final rule or be otherwise published in the Federal Register? In addition, how often should the list be updated?*

Both – the list of qualifying activities should be published in the Appendix to the final rule, as well as on an ongoing basis in the Federal Register.

And, as noted above, under "Government Programs," state and local government regulators (e.g., Connecticut Department of Banking) should also play a role in receiving, assessing, and determining what activities qualify for CRA credit locally, with those determinations then being accepted regionally, or nationally through an appropriate process. Those determinations would then be included in the Federal Register on an annual basis.

8. *The use of multipliers is intended to incentivize banks to engage in activities that benefit LMI individuals and areas and to other areas of need; however, multipliers may cause banks to conduct a smaller dollar value of impactful activities because they will receive additional credit for those activities. Are there ways the agencies can ensure that multipliers encourage activities that benefit LMI individuals and areas while limiting or preventing the potential for decreasing the dollar volume of activities (e.g., establishing a minimum floor for activities before a multiplier would be applied)?*

As suggested above, the Green Bank believes that long-term commitments by banks in smaller loans and investments can be extremely beneficial to improving the essential clean energy infrastructure for LMI individuals, as well as small businesses in LMI census tracts.

[18] Connecticut Public Act 12-148 (Section 7)

[19] This definition derives from a federal Notice of Funding Availability for the National Disaster Resilience Competition (page 12). The term "climate" is added above to further specify the domain of resilience, and because climate change impacts are required inclusions throughout the Notice (i.e., pages 5 and 18).

Perhaps, the multipliers apply only within those banks who are seeking an "Outstanding" CRA rating. Within this rating category, for example, an appropriate calculation can be determined based on:

- **Longevity** – the length of the loan, investment or service;
- **Size** – the amount of the loan, investment or service; and
- **Location** – either within the assessment area, or in another assessment area (e.g., CRA desert).

In order to receive an "Outstanding" CRA-rating, a threshold of multiplier points could be established through an objective methodology, or a specific distinction could be bestowed on those who are receiving multiplier credits

The objective is to reward those banks who are "greenlining" to receive credit and recognition for their investment in LMI communities that advance the spirit and policy foundation of CRA.

Assessment Areas

The Green Bank would like to offer a comment and recommendation on one (1) of the three questions raised under assessment areas, including:

11. Are the proposed methods for delineating assessment areas clear, simple, and transparent?

From the Green Bank's perspective, the proposed methods for delineating assessment areas appears to be clear (including recommendation below), and simple, however, additional transparency would be useful.

With regards to delineating assessment areas, there appears to be two (2) ways for a bank, including:

- **Facility Based Assessment Area** – area which either (a) houses the main office, a branch, or a deposit-taking facility (i.e., bricks-and-mortar), as well as (b) any surrounding geographies where the bank has originated or purchased a substantial portion of its loans.

  Recommendation – as is noted in the proposed assessment area that has fifty-percent (50%) or more of its deposits outside of the facility-based assessment area, for "facility based assessment areas" that are beyond "bricks-and-mortar" in surrounding geographies, include "a state" as an option,[20] for the bank's determination to be consistent across assessment area determinations – "The proposal would require a bank to delineate these facility-based assessment areas in any of the following areas: (1) a state…"; and

- **Fifty Percent or More of Deposits Outside Facility Based Assessment Area** – area in which more than fifty-percent of the deposits are outside the facility based assessment area (including alternative considerations that would include between forty-percent to sixty-percent) that receive no less than five-percent (including

[20] Federal Register / Vol. 85 No. 6 / Thursday, January 9, 2020 / Proposed Rules (p. 1216 – Column 1, 2nd Paragraph)

alternative considerations of no less than two or no less than eight percent) of deposits.

If this understanding of the delineation is correct, then it appears to be clear and simple.

In terms of transparency, in order to ensure that the proposal would "retain the requirements that a bank's assessment area must not reflect illegal discrimination or arbitrarily exclude low- or moderate-income geographies" (i.e., prevent "redlining"), the Green Bank would request full and transparent disclosure by banks of their assessment area(s) by census tract be easily accessible and publicly available. In the 21st century, where information technology has enabled society to collect and analyze data quicker and more reliably, this would provide third-parties with information to discern whether or not the bank is meeting the spirit of CRA policy by "greenlining" investment in underserved geographies (e.g., reducing CRA deserts) or "redlining".

Performance Scoring

With regards to performance scoring, the Green Bank has no comments on any of the six (6) questions posed.

Data Collection and Reporting

The Green Bank would like to offer comments and recommendations on one (1) of the three questions raised under data collection and reporting, including:

20. As discussed above, the proposal would require banks to collect and report additional data to support the proposed rule. Although most of this data is already collected and maintained in some form, some additional data collection may be required. For example, banks may need to gather additional data to determine whether existing on-balance sheet loans and investments are qualified activities. Are there impediments to acquiring this data? If so, what are they?

From the perspective of the Green Bank, it would only seem prudent that along with the collection of data like dollar value of the activity, the activity location, how the activity satisfies the qualifying activities criteria, and whether it serves a particular assessment area, that gathering additional data to justify all qualifying activities (and non-qualifying activities) is essential to the successful implementation of the proposed changes to CRA.

The Green Bank stresses the importance of transparency and accessibility of data by third-parties who seek to independently assess the performance of the banks in terms of meeting the spirit of CRA policy by investing in qualifying activities within their respective assessment areas.

RECOMMENDATIONS FOR QUALIFYING ACTIVITIES LIST

The Notice includes a "Qualifying Activities Illustrative List" to help better inform regulated financial institutions about the types of activities that would qualify for CRA. The Green Bank would like to offer additional qualifying activities given (1) that essential clean energy, environmental and resiliency infrastructure is paramount in terms of strengthening LMI communities, and (2) that local and state governments have a role to play in determining federal qualifying activities.

Here is a list of additional qualifying activities that the Green Bank would propose be included on the "Qualifying Activities Illustrative List":

- Consumer loan, lease, PPA, or energy savings agreement to an LMI individual, multifamily affordable property owner, business or farm to undertake an essential clean energy (e.g., energy efficiency, renewable energy, etc.) or environmental (e.g., water, asbestos remediation, resilience, etc.) infrastructure and improvement project on their property.

- Financing for commercial property owners (e.g., small businesses, farms, non-profit organizations, etc.) that finance an essential energy (e.g., energy efficiency, renewable energy, etc.) or environmental (e.g., water, asbestos remediation, resilience, etc.) infrastructure and improvement project on their property through the use of a benefit assessment.

- Purchasing loans from "on bill" utility programs for LMI individual, multifamily affordable property owner, business or farm that undertake an essential energy (e.g., energy efficiency, renewable energy, etc.) or environmental (e.g., water) infrastructure and improvement project financed through their utility bill.

- Providing line of credit to a state or local government or investing in bonds issued by a state or local government whose proceeds are being used to support LMI communities, small businesses, and farms undertake essential energy (e.g., energy efficiency, renewable energy, etc.) or environmental (e.g., water, asbestos remediation, resilience, etc.) infrastructure and improvement projects on their property.

- Providing services to commercial property owners that help them better understand their operating expenses from utilities (e.g., electricity, gas, and water), while then offering them essential clean energy or environmental infrastructure projects can reduce costs, by regulated financial institutions providing consent for benefit assessment to be senior to existing mortgages on a property.

- Providing services and contributions to local nonprofit organizations that provide technical assistance to strengthen communities through the promotion of sustainability (e.g., Sustainable CT, Sustainable Jersey, etc.).

These additional qualifying activities identified by the Green Bank, help regulated financial institutions meet the credit needs of the local community, including low- and moderate-income neighborhoods, in which they are chartered.

CONCLUSION

The Green Bank has worked with community, state, and federally chartered banks and credit unions to invest in the essential clean energy infrastructure of Connecticut – specifically in LMI census tracts and with small businesses. This increasing investment is helping grow the green economy of Connecticut – reducing the burden of energy costs on our families and businesses, creating jobs in our communities, improving public health, and protecting the environment. Any proposed improvements in CRA should further encourage banks to increasingly meet the credit needs of the entire local communities, especially low- and moderate-income neighborhoods. By acknowledging the importance of essential energy, environmental, and resilience infrastructure as a component of strong communities, and by

recognizing the important role of local and state governments, CRA will be positioned to meet the needs of the United States well into the 21st century.

FY 12 - FY 19

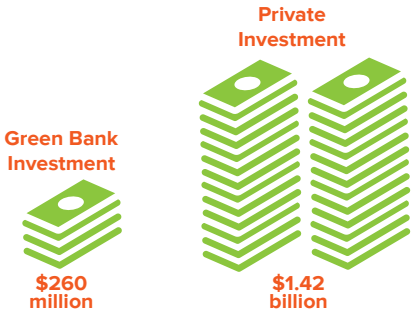
CONNECTICUT GREEN BANK SM

Green Bank Impact Report

Since the Connecticut Green Bank's inception through the bipartisan passage of Public Act 11-80 on July 1, 2011, we have accelerated the deployment of clean energy to benefit families, businesses, and our communities. The impact of our green bank innovation is shown below in terms of investment, economic development, and environmental protection from FY 2012 through FY 2019.

INVESTMENT IN CONNECTICUT

Investment Since inception, the Green Bank has mobilized ***$1.68 billion*** of investment into the State's economy.



Leverage ratio The Green Bank's leverage ratio is the relationship between private investment and Green Bank investment.

For every $1 of Green Bank investment, we attract $6.50 of private investment.

Tax revenues The Green Bank's activities have helped generate an estimated ***$87.1 million*** in state tax revenues.

$43.1 million individual income tax

$23.0 million corporate taxes

$21.1 million sales taxes

ECONOMIC DEVELOPMENT

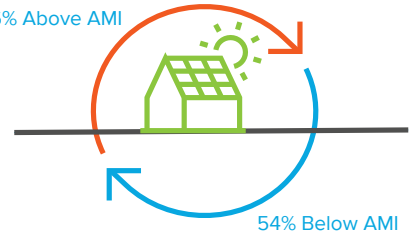
Jobs The Green Bank has supported the creation of more than ***20,000*** direct, indirect, and induced job-years.

Energy burden The Green Bank has reduced the energy costs on families, businesses, and our communities.

40,000+ ***families***

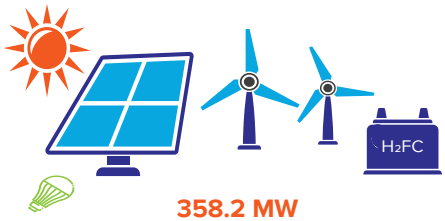
375+ ***businesses***

Accessible and affordable The Green Bank has supported residential solar PV installation to reach income parity and pursuing beyond.



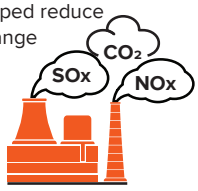
ENVIRONMENTAL PROTECTION

Deployment The Green Bank has accelerated the growth of clean energy to more than ***350 MW***.



358.2 MW of installed capacity

Pollution The Green Bank has helped reduce air emissions that cause climate change and worsen public health, including 5.1 million pounds of SOx and 6.3 million pounds of NOx.



5.8 million tons of CO_2 which equals

88 million tree seedlings grown for 10 years

or

1.1 million passenger vehicles driven for one year

Public health The Green Bank has improved the lives of families, helping them avoid sick days, hospital visits, and even death.

$206.7 - $466.7 million of lifetime public health value created

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. We're creating a thriving marketplace to accelerate green energy deployment in Connecticut by making green energy financing accessible and affordable for homeowners, businesses and institutions.

Sources: Connecticut Green Bank Comprehensive Annual Financial Reports

FY 12 - FY 19

CONNECTICUT GREEN BANK SM

Lenders on Connecticut Green Bank

"As America's socially responsible bank, Amalgamated Bank is on a mission to align our investments with our values. We are committed to sustainability and environmental protection, and we want to help increase accessibility to the benefits of clean energy. Working with the Connecticut Green Bank, we have found a partner driven by the same mission. Together, we are making investments to fuel the green energy revolution."

Keith Mestrich, President & CEO, Amalgamated Bank

"The importance of public-private partnerships, like the one between KeyBank and the Connecticut Green Bank, cannot be overstated, especially when it comes to the financing of renewable and other clean energy projects. Our partnership with the Green Bank through the CT Solar Lease led to over $100 million of investment to reduce the energy burden on nearly 1,200 families and 75 businesses in our communities. Additionally, it was the involvement of the Green Bank that helped attract financing from Key Bank toward microgrid construction at critical facilities in Bridgeport, and a first-of-its-kind 'micro-hydro' generator at Hanover Pond in Meriden."

Christopher Gorman, Vice Chairman and President of Banking, KeyBank

"Liberty Bank has been a partner with the Connecticut Green Bank from the start. Liberty Bank recently provided a financing facility for the Green Bank's capital needs for solar on homes across the state, which is supporting the state's growing green economy."

Chandler Howard, President and CEO, Liberty Bank

"Our partnership with the Green Bank has helped us to invest in our local communities, while assisting the State of Connecticut in achieving its important energy, environment, and economic goals."

Larry Holderman, President and CEO, Mutual Security Credit Union

"The CT Solar Loan program was a game-changer for solar financing and Sungage Financial. Our partnership with the Green Bank in Connecticut helped our company grow and become a national leader in helping families finance solar and realize the important benefits it provides."

Sara Ross, Co-Founder and CEO, Sungage Financial

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

July 1, 2022

U.S. Department of Energy
Loan Programs Office
Title XVII Innovative Technologies Loan Guarantee Program
Federal Register / Vol. 87, No. 105 / Wednesday, June 1, 2022 / Notices (33141-33144)

SUBJECT: **Comments from the Connecticut Green Bank – Loan Program Office's Innovative Technologies Loan Guarantee Program Request for Information**

To Whom it May Concern:

The Connecticut Green Bank ("Green Bank") appreciates the U.S. Department of Energy's ("DOE") efforts through the Loan Programs Office ("LPO") issuing this Request for Information ("RFI"). The RFI is seeking information to understand how it could improve its Title XVII Loan Guarantee Program ("Title XVII"), including amending the Title XVII Rule ("the Rule"), by implementing provisions from the Energy Act of 2020 ("the Act") and the Infrastructure Investments and Jobs Act of 2021 ("IIJA"), that expand or modify the authorities applicable to Title XVII.

At the outset, the Green Bank would make the following points:

- **Include Prior Submission** – the DOE should include the Green Bank's prior comments under DE-FOA-0002716 filed on May 6, 2022, for "Designing Equitable, Sustainable, and Effective Revolving Loan Fund Programs" as part of this submission – see Attachment D.

- **Community Reinvestment Act** ("CRA") – with respect to this RFI, the Green Bank principally responds from the perspective of the Community Reinvestment Act of 1977,[1] which forms the basis for an existing public policy mechanism to increase private investment from the banking industry in clean energy, climate change, and Justice 40 (or vulnerable community)[2] objectives. Although CRA does not explicitly mention race, it was passed alongside complementary federal civil rights laws including the Equal Credit Opportunity Act.

[1] 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.

[2] Per Connecticut's 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.

- **Local and State Government** – with respect to this RFI, the Green Bank secondarily responds to Section 40401(c)(2) of the IIJA.[3]

- **Defense Production Act** ("DPA") – with the recent statement of the Biden Administration on the DPA to spur domestic clean energy manufacturing,[4] there is the potential for federal government procurement, zero interest loans, provision of capital (i.e., to state and local governments), and other mechanisms (e.g., an LPO nationwide guarantee to participating state energy financing institutions) to support the investment in and deployment of critical clean energy technologies (i.e., solar, insulation, heat pumps, fuel cells, and grid infrastructure) to reduce energy costs for all Americans, especially those in vulnerable communities, whose energy burden is increasingly being exacerbated as a result of the War in the Ukraine.

- **American Recovery and Reinvestment Act** ("ARRA") – it should be noted that through 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 (e.g., heat pumps) and renewable energy (e.g., solar) projects for over 9,000 families. The investment of federal funds, as credit enhancements (i.e., loan loss reserves ("LLR"), interest rate buydowns ("IRB")), 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), 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 private investment to increase the impact of taxpayer resources while maximizing the benefits to participants (e.g., reduce energy burden and increase energy security), ratepayers (e.g., reduce peak demand and increase grid reliability and resiliency), and society (e.g., create good-paying jobs, reduce GHG emissions). As the DOE looks ahead at implementing the Act and IIJA, including amendments to Title XVII, the Rule, and other provisions, it should build on the lessons learned from ARRA, while advancing the Biden Administration's objectives (e.g., DPA, 100% clean electricity by 2035, Justice 40).

The Green Bank offers the following comments with respect to the RFI:

A. Energy Act of 2020

With respect to Section 9010(a)(3)(A) of the Act, on applicant payment of fees and third-party costs incurred by the DOE to review applications,[5] the Green Bank would, in general, state that the payment of fees and cost recovery by the DOE from third-party advisors should be reasonable. It is difficult for RFI respondents and potential applicants to ascertain reasonableness without data from the DOE LPO on prior fees paid and third-party advisor costs incurred by former applicants. The Green Bank believes that the DOE LPO publicly provides such information (or will make it available upon request to potential applicants), however, if not, then the LPO should consider such public disclosures in order for potential

[3] LPO authority to work with local and state government was expanded under Sec. 40401(c)(2) of the IIJA amending the terms and conditions of Title XVII 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.

[4] https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/06/fact-sheet-president-biden-takes-bold-executive-action-to-spur-domestic-clean-energy-manufacturing/

[5] (A-1)(i-iv)

applicants to ascertain reasonableness and establish expectations for the fees and costs incurred by the DOE during the various stages of the application process to cover its administrative costs.

RECOMMENDATIONS
The following should be considered with respect to fees and costs:

- **Prioritization to Justice 40** – allowances should be given to the Secretary of Energy for applicants whose projects or technologies benefit vulnerable communities, to forgive (or reduce) fees and costs to applicants given the public policy objectives of the Biden Administration; and

- **Financing Costs** – allowance for the fees and costs (i.e., LPO administrative expenses) to be financeable within the terms of the financing agreement to be paid overtime as principal and interest for successful applicants.

With respect to Section 9010(b) of the Act, in general, the DOE should recognize that a technology may be commercial in one region versus another as a matter of (1) environmental conditions (e.g., open space in the Southwest versus tree cover and alternative land uses such as agriculture and forestry in the Northeast), (2) statutory and regulatory policies of local and state government (e.g., renewable portfolio standards, greenhouse gas reduction targets, net metering, procurement), or (3) other relevant factors. The commercialization success of the LPO Title XVII solar projects in the Southwest (i.e., various 100 MW sized projects) are different than what is required for such commercial success of solar projects in the Northeast, Southeast, Midwest, etc. Commercialization should not be viewed in a technology silo, but instead recognize other factors that enable such commercialization as noted above (e.g., environmental conditions, statutory and regulatory policies of local and state governments), including others such as income (i.e., area medium income census tracks), race and ethnicity, and other socio-economic factors.

And lastly, in terms of Section 1703 of the Energy Policy Act of 2005, not only should "…innovative software, innovative technology applications, or control system technology under Title XVII…" be visited, but the definition of "commercial technology" per the Rule should be revisited as well.

- **Definition of "Commercial Technology"** – Title XVII provides loan guarantees for projects that "avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases" and [emphasis added] "employ new or significantly improved technologies as compared to commercial technologies in service in the United States." The Title XVII Rule states that "commercial technology means a technology in general use in the commercial marketplace [emphasis added] in the United States at the time the term sheet is offered by DOE..."

    - The current definition for "commercial technology" under the Title XVII Rule has flaws because it is not inclusive of vulnerable communities. In other words, just as environmental conditions and statutory and regulatory policies of local and state government have an impact on "commercial technology," so too does the income of people within an economy. If the DOE asked the question with an equity lens "…in general use in the commercial marketplace for who…" it would see that its current definition of "commercial technology" is too exclusive, and not inclusive of the socio-economic marketplace for commercial clean energy technologies in the United States. As such, such clean energy technologies aren't commercial and therefore should be supported by Title XVII to provide easy and affordable access to applicants seeking to serve those vulnerable communities with appropriate clean energy technologies.

As a result, states are left to "fill the void" to enable "commercial technologies" to be accessible and affordable to vulnerable communities. Allowing private entities, the opportunity to use Title XVII for commercial technologies (e.g., distributed energy resources as noted within the DPA) that benefit vulnerable communities should be pursued (e.g., loan guarantee for a third-party financier of a portfolio of residential solar PV and battery storage projects within less than 80 percent of area median income census tracts).[6]

RECOMMENDATIONS

Within §609.2 Definitions and Interpretation of the Rules, the LPO should consider adding the following in order to increase access to commercial technologies for vulnerable communities:

- **Redefining Commercial Technology** – *Commercial Technology* means a technology in general use in the commercial marketplace in the United States, including communities eligible for the Community Reinvestment Act of 1977, at the time the Term Sheet is offered by DOE. A technology is in general use if it is being used in three or more facilities that are in commercial operation in the United States for the same general purpose as the proposed project, and has been used in each such facility for a period of at least five years. The five-year period for each facility shall start on the in-service date of the facility employing that particular technology or, in the case of a retrofit of a facility to employ a particular technology, the date the facility resumes commercial operation following completion and testing of the retrofit. For purposes of this section, facilities that are in commercial operation include projects that have been the recipients of a loan guarantee from DOE under this part.

- **Include Community Reinvestment Act as a Definition** – just as the Rules include the Davis Bacon Act of 1931 to acknowledge the importance of paying the local prevailing wage on public works projects, the Rules should also include the Community Reinvestment Act of 1977 to acknowledge the importance of enabling private investment projects in vulnerable communities (e.g., environmental justice communities).

- **Include CRA within Eligible Project Definition** – to acknowledge the importance of enabling private investment in projects in vulnerable communities, the following should be added within the Eligible Project definition "(iv) is located in 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."

These inclusions within Title XVII, will enable private developers an opportunity to develop projects that would benefit vulnerable communities across the United States. Vulnerable communities are not only being adversely impacted by climate change, but they are also being impacted by rising inflation resulting from energy costs from the War in the Ukraine. Enabling Title XVII to support eligible projects in vulnerable communities, is a means to support the DPA as well as confront climate change.

In terms of "…innovative software, information technology applications, or control system technology…"[7] the Green Bank would say that such technology should be eligible under Title XVII, however, only after definitions within the Rules are modified to be more inclusive of vulnerable

[6] It should be noted that the Community Reinvestment Act of 1977, 12 USC 2901 et seq. acknowledges the need for FDIC-insured commercial banks to provide access to capital to families and businesses in less than 80 percent AMI census tracts.

[7] (A-3)

communities as noted above within the context of CRA, and not exclusive to those with economic means.

B. Infrastructure Investments and Jobs Act

This is the principal section the Green Bank would like to respond to.

In terms of what types of entities should be considered "state energy financing institutions" for implementing Title XVII,[8] the Green Bank would recommend:

- **Government** – public and quasi-public entities of local (e.g., DC Green Bank) and state (e.g., Connecticut Green Bank, New York Green Bank) government (i.e., green banks).

- **Non-Profit Organizations** – registered as a 501(c)3 of the Internal Revenue Code or community development financing agencies (e.g., community development financial institutions, credit unions), working with public and quasi-public entities, established for the purposes consistent with Title XVII.

A private entity could be formed for the purposes consistent with Title XVII and be considered a "state energy financing institution" as long as it is not primarily a profit seeking entity, but instead an entity focused primarily on social and environmental profit, and subject to public disclosures of financial information. For example, a Certified B Corporation could be considered. The general point is that to be considered as such an institution, that business must serve more than shareholders and be primarily focused on society (i.e., the state).

In terms of the types of financial support or credit enhancements from "state energy financing institutions" the DOE should consider in evaluating projects under this authority,[9] the Green Bank would recommend the financing tools established through ARRA:

- Revolving loan funds
- Loan loss reserves
- Interest rate buydowns
- Third party insurance

These financing tools are tried and tested,[10] and demonstrate how to mobilize private capital investment, alongside public resources, to provide easier and more affordable access to clean energy technologies for vulnerable communities, including small businesses within those communities. As interest rates rise, it will be increasingly important to keep the cost of capital down in order to ensure the realization of benefits that clean energy provides to vulnerable communities.

Other financing should also be included:

- Transaction warehousing through standardized documentation

[8] (B-1)(i-iii)

[9] (B-2)

[10] 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.

- Securitization credit enhancements to reduce the costs of capital (e.g., Special Capital Reserve Fund or "SCRF")[11]

Resources provided through Title XVII to "state energy financing institutions" could make capital easier to access and more affordable in order to maximize the benefits clean energy technologies provide (e.g., reduce energy burden, increase energy security), especially for vulnerable communities.

In terms of how the DOE can facilitate a nationwide program for partnering with "state energy financing institutions,"[12] as noted in the Green Bank's comments under DE-FOA-0002716, through an "across government" strategy, the LPO working with the U.S. Department of Treasury's CRA division, could mobilize billions of dollars of public and private investment in vulnerable communities across the country.

RECOMMENDATION
The LPO should work with leading green banks at the local and state level (e.g., DC Green Bank, Montgomery County Green Bank, Connecticut Green Bank, Hawaii Green Infrastructure Authority, Illinois Finance Authority) focused on credit enhancement strategies (e.g., loan guarantees), including non-profit organizations (e.g., Inclusive Prosperity Capital, Inclusiv, Michigan Saves, Solar and Energy Loan Fund), to develop a standardized single "opt-in" loan guarantee program with uniform terms and requirements to enable easy and affordable access to capital to finance clean energy improvements for families and businesses with a priority towards communities eligible for CRA.

With inflation on the rise, and energy a key component as a result of the War in the Ukraine, the DOE's use of the DPA, to enable more investment in clean energy in CRA eligible communities through the LPO, will help confront climate change, while reducing the increasing burden of energy costs borne by vulnerable communities.

C. Title XVII Financing Structures[13]

Any amendments to the Rule, should enable Title XVII to offer program(s) (e.g., national loan loss guarantee) to "state energy financing institutions" to support clean energy deployment in vulnerable communities. As noted above, ensuring that CRA-eligible projects are deemed eligible projects per Title XVII Rules would be a critical factor. Rather than a competitive RFP, the LPO should be able to design programmatic offering(s) (e.g., through RFIs) that make accessing Title XVII easier for "state energy financing institutions" (e.g., opt-in) to mobilize private investment in clean energy deployment in their vulnerable communities.

RECOMMENDATION
The LPO should issue an RFI to establish a national loan guarantee for CRA-eligible projects. There could be no better place-based initiative that the LPO could provide for Justice 40 than a national loan guarantee that supports the development of projects in CRA-eligible communities in collaboration with "state energy financing institutions".

[11] In Connecticut, the Green Bank has access to $250 MM of SCRF, which is the ability to issue bonds supported by the State of Connecticut – thereby improving the bond rating and therefore reducing borrowing costs and costs of capital for financing clean energy projects.
[12] (B-3)
[13] (C-1) through (C-2) only

For example, "Under the amendments to Title XVII through the Energy Act of 2020,[14] the LPO is seeking requests for information on how a standardized $500 MM loan guarantee facility to state energy financing institutions would unlock private investment in clean energy technologies in CRA-eligible communities." By soliciting feedback for a standardized programmatic approach that allows "state energy financing institutions" to "opt-in" and access Title XVII resources through the LPO, additional public and private investment that is more accessible (i.e., CRA-eligible communities) and affordable (e.g., lower interest rates, longer terms) can be mobilized to provide vulnerable communities with the capital they need to realize the benefits that clean energy technologies provide.

The LPO has an opportunity now as a result of the Act, IIJA, and this RFI to mobilize public and private investment in place-based Justice 40 initiatives, if it works in collaboration with "state energy financing institutions".

D. Title XVII Loan Guarantee Program Improvements

It is great to see the LPO receiving a significantly higher volume of applications to its Title XVII program in the past twelve months than in recent years. The challenge for the LPO will be its ability to manage within its resources (i.e., human and financial), while at the same time encouraging maximum participation within its programs – from applications submitted to innovative transactions approved, especially transactions focused on vulnerable communities (e.g., including Tribal Nations).

In terms of how the LPO navigates through this challenge,[15] the Green Bank provides the following observations. The Operating Procedures of the Green Bank allow us to invest in projects through competitive solicitations, designed programs, or strategic opportunities.[16] If posed with budget and time constraints, it is likely that the Green Bank would focus its resources on areas that delivered the most impact (i.e., "bang for the buck") with respect to our primary inputs, outputs, and outcomes (i.e., maximize societal benefit per public dollar invested) – which includes investment (i.e., both public and private), clean energy produced (e.g., kWh, MMBtu), emissions avoided (e.g., CO_2, particulate matter), jobs created, and ensuring that no less than forty percent of investment and benefits is directed to vulnerable communities. For the LPO, this might translate into explicit requests for proposals with detailed funding currently available over a specified period of time. For example, the LPO has [$X] billion of existing loan guarantee authority for innovative [Type of Technology] projects that it seeks to invest in the next [X] years by mobilizing [X] times more private investment. For the Green Bank, mobilizing investment, specifically multiples of private investment using limited public resources, is the key metric for achieving the ambitious social and environmental public policy goals of the State of Connecticut.

The Rule should further clarify what the DOE considers a "project" because the track record of the LPO doesn't represent distributed energy resources ("DER"). The Rules should allow for DER projects to be supported by Title XVII as is being suggested above by the Green Bank within the lens of CRA, vulnerable communities, and a standardized national loan guarantee program for "state energy financing institutions".

Within the "project costs" definition of the Rules, includes:

- "…and shakedown of an Eligible Project, as specified in § 609.10(a)."

[14] Sec. 40401(c)(2) of the IIJA
[15] (D-1) through (D-4)
[16] https://www.ctgreenbank.com/wp-content/uploads/2022/05/5ai_Green-Bank-Operating-Procedures.pdf

- "Project costs do not include costs for the items set forth in § 609.10(b)."

For DER projects to be considered as "eligible projects" (i.e., they should be included within the "eligible projects" definition), the Green Bank would suggest including the following from § 609.10(a):

- (12) Other necessary and reasonable costs, including, without limitation, previously acquired real estate, equipment, or other materials, marketing costs for customer acquisition, and any engineering, construction, make-ready, design, permitting, or other work completed on an existing facility or project.

And removing the following from § 609.10(b):

- (9) Operating costs

In terms of applicants being prejudiced or disadvantaged if the application process were to not include the negotiation of a preliminary term sheet with the DOE, the Green Bank feels that it is standard practice for transactions to include the negotiation of a preliminary term sheet.

And lastly, although the Green Bank doesn't have direct experience applying within Title XVII, the DOE can modify its application process or requirements in a manner that improves its implementation of Title XVII by integrating the purposes of the Act, by creating an opportunity for "state energy financing institutions" to "opt-into" a standardized loan guarantee program offered by the LPO through a simple application to provide local and state governments and nonprofit organizations with easy and affordable access to capital to support clean energy deployment in vulnerable communities.

The Green Bank appreciates the DOE's efforts to solicit public comment on the LPO's Title XVII program amendments given the Act and IIJA. If appropriate, we look forward to speaking with members of the LPO team, including alongside our local and state, and nonprofit partners, to enable Title XVII to mobilize private investment in clean energy for vulnerable communities through CRA to confront climate change and support the DPA.

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. Connecticut Green Bank Decennial Societal Impact Report – Fact Sheet
B. The Impact of Federal Funds in Connecticut – Fact Sheet
C. Green Bank's comments filed under DE-FOA-0002716

ATTACHMENT A

CONNECTICUT GREEN BANK

Decennial Societal Impact Report

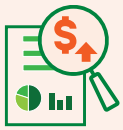
FY12 FY21

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

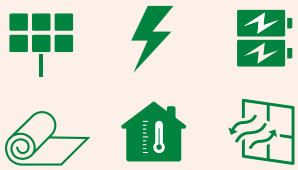
ENERGY

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

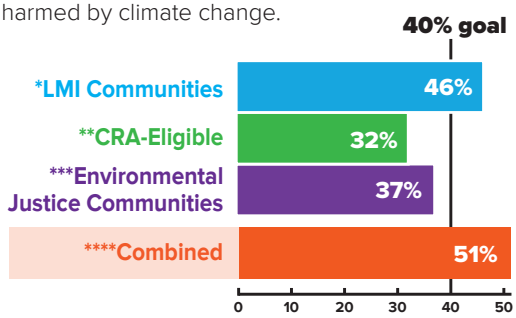
2.1 MILLION passenger vehicles driven for one year

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 Communities – census tracts where households are at or below 100% Area Median Income.

**Community Reinvestment Act (CRA) Eligible – households at or below 80% of Area Median Income and all projects in programs designed to assist LMI customers.

***Environmental Justice Community means a municipality that has been designated as distressed by Connecticut Department of Economic and Community Development (DECD) or a census block group for which 30% or more of the population have an income below 200% of the federal poverty level.

****Combined Vulnerable Communities include LMI, CRA and EJC.

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 Comprehensive Annual Financial Reports

ATTACHMENT B

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

Environment

ARRA funds helped to avoid **596,382 tons of CO_2,** which is equal to:

8.9 million tree seedlings grown for 10 years

removing 117,663 passenger cars from the road for one year

Economic Development

The Green Bank turned $8.25 million of federal funds

$8.25 million → $174.6 million

into **$174.6 million in investments**

$16.5M Green Bank investment

$158.1M private investment

$8.25M ARRA Funds

The Green Bank supported the creation of **2,176 job-years of employment** through the use of ARRA funds.

Equity

38% of **investments**

53% of **projects**

were made in **vulnerable communities**

$38.8–87.8M of lifetime public health value created

9,434 families supported

The Green Bank targets 40% of investment and benefits into vulnerable communities

Energy

The use of ARRA funds supported

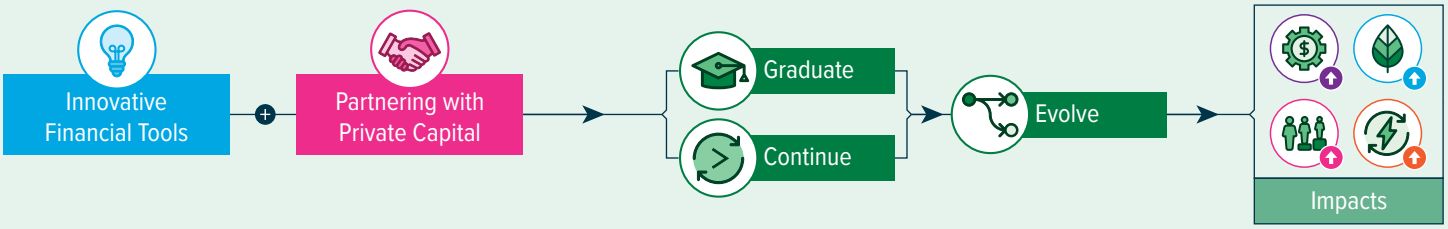
- Deployment of over **24 megawatts** of **clean energy**
- **Lifetime savings of over 3.4 million MMBTUs** through energy efficiency projects, including:
  - Solar panel installation
  - Insulation upgrades
  - Heating and cooling system upgrades

$138M in lifetime energy savings generated

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.

ATTACHMENT C

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:

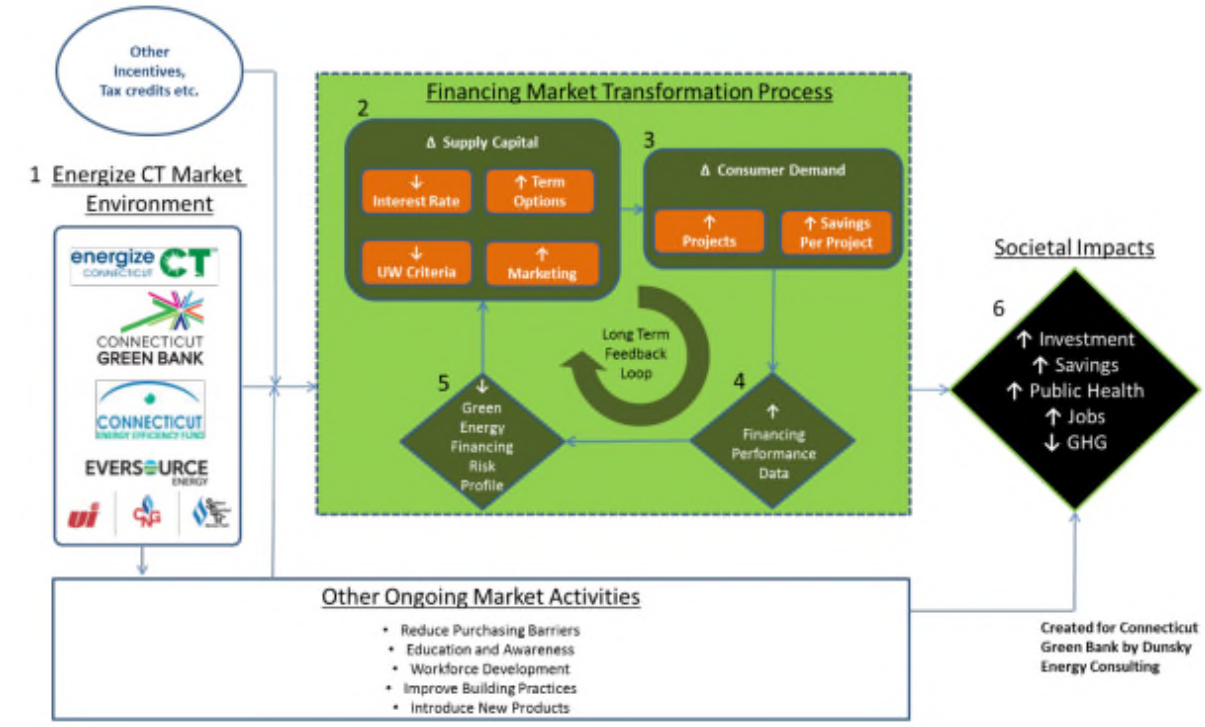
- Energy Efficiency Financing for Low- and Moderate-Income (LMI) Households: Current State of the Market, Issues, and Opportunities (August 2017)[31]
- Making it Count: Understanding the Calue of Energy Efficiency Financing Programs Funded by Utility Customers (December 2015)[32]
- Accessing Secondary 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/

October 17, 2022

U.S. Department of Energy
Office of Manufacturing & Energy Supply Chains
Office of Energy Efficiency and Renewable Energy
bil-batterymanufacturing@hq.doe.gov

SUBJECT: **Comments from the Connecticut Green Bank – BIL-Battery Recycling RFI – DE-FOA-0002833**

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 Manufacturing and Energy Supply Chains ("MESC") and the Office of Energy Efficiency and Renewable Energy ("EERE") issuing this request for Information ("RFI") – Collection, Transportation, Sorting, Processing, and Second Life Applications for End-of-Life Lithium-Ion Batteries. The RFI is intended to provide the DOE with public input to help inform its implementation of the Infrastructure Investments and Jobs Act ("IIJA"), also known as the Bipartisan Infrastructure Law ("BIL"), specifically Sections 40207(e), 40207(f)(2), (f)(3), (f)(4) and 40208. The Green Bank, seeks to provide public comment on Section 40207(f)(2) "Battery Recycling Research, Development, and Demonstration Grants" and Section 40207(f)(3) "State and Local Programs," and in particular Category G "State and Local Collection Programs for Lithium-Ion Batteries" and Category J "Equity, Environmental, and Energy Justice (EEEJ) Priorities".

Background

There are numerous public policies in Connecticut that support the Biden Administration's policies, including:

- **GHG Reduction Targets** – Public Act 08-98 "An Act Concerning Connecticut Global Warming Solutions," established GHG emission reduction targets for 2010, 2020, [2030, 2040] and 2050.[1]

- **Renewable Portfolio Standards** – Connecticut has a Renewable Portfolio Standard ("RPS") of 40% by 2030.

- **Resilience and Vulnerable Communities** – Public Act 20-05 "An Act Concerning Emergency Response by Electric Distribution Companies, the Regulation of Other Public Utilities and Nexus

[1] It should be noted, that through Public Act 18-82, a 45% reduction of GHG emissions from 2001 levels by 2030 was established. This target is consistent with President Biden's 50% reduction of GHG emissions from 2005 levels by 2030. And, through the passage of Public Act 22-5, that a 100% zero carbon electric sector by 2040 was established.

Provisions for Certain Disaster-Related or Emergency-Related Work Performed in the State," established definitions for resilience[2] and vulnerable communities,[3] including incentive programs (i.e., Microgrid and Resilience Grant and Loan Pilot Program).

- **Just Transition Requirements** – Public Act 21-43 "An Act Concerning a Just-Transition to Climate-Protective Energy Production and Community Investment," established requirements for community benefit agreements.

The Green Bank shares the DOE's goals for the investment under Section 20207(f) of the BIL. And specifically, with respect to Section 20207(f), there are several public policies in Connecticut that will lead to the use, and potential recycling, of lithium-ion batteries, including:

- **Battery Storage Target** – Public Act 21-53 "An Act Concerning Energy Storage," established a 1000 MW target for battery storage by 2030.

- **Electric Vehicle Deployment Goal** – The Connecticut Department of Energy and Environmental Protection ("CT DEEP") released the EV Roadmap for Connecticut, which sets a state goal for 20% of the statewide light-duty fleet, or 500,000 vehicles, to be EV by 2030. Cars and light-duty trucks purchased by state agencies in Connecticut will also transition to EV – by 2030 100% of vehicle acquisitions must be EVs per Connecticut General Statutes 4a-67d.

- **Zero Emission Buses** – Public Act 22-25 "An Act Concerning the Connecticut Clean Air Act," established a 100% zero-emission target for school buses in environmental justice communities by 2030, and all school districts by 2040. Per Senate Bill 4, at least 30% of transit buses purchased or leased by the state must be zero emission by 2030.

- **Waste and Recycling** – Public Act 21-115 "An Act Concerning Climate Adaptation," expanded the scope of the Connecticut Green Bank beyond "clean energy" to include "environmental infrastructure"[4] allowing the green bank model to accelerate and grow Connecticut's green economy, including climate adaptation and resilience and waste and recycling.

In October 2019, the Public Utilities Regulatory Authority ("PURA") initiated an Equitable Modern Grid Framework that includes battery storage (i.e., Docket No. 17-12-03RE03) and zero emission vehicles (i.e., Docket No. 17-12-03RE04). The Green Bank, in collaboration with Eversource Energy and United Illuminating (i.e., the two investor-owned electric distribution utilities in Connecticut), are co-administering a 580 MW by 2030 behind the meter battery storage incentive program for residential (i.e., 290 MW) and non-residential (i.e., 290 MW) end-use customers called Energy Storage Solutions – see Attachments A and B. Per PURA directive, no less than 40 percent of residential projects will be

[2] "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.

[3] "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.

[4] "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.

installed for low-income families, in homes located in distressed communities, or in multi-family affordable housing. In this bring-your-own device program, the majority of batteries that have been approved to date are lithium-ion – see Table 1 below.

Table 1. Example of batteries that could potentially be used in Energy Storage Solutions and need end-of-life services.

Manufacturer	Model/Model #	Composition	kWh	Weight (lbs.)	Dimensions
Sun Power	SV-BASE13-12-B	Li-ion (LiFePO4)	13	528	26 x 63 x 15
Electriq Power	350-10LC	Li-ion (LiFePO4)	15	725	60 x 50 x 9
EndurEnergy Systems	ESP-5100	Li-ion (LiFePO4)	5.12	92.6	17.4 x 19.7 x 5.2
Enphase	Encharge 3	Li-ion (LiFePO4)	3.5	114	14.5 x 26.1 x 12.6
Enphase	Encharge 10	Li-ion (LiFePO4)	10.08	341	42.1 x 26.1 x 12.6
Equana	Evolve LFP	Li-ion (LiFePO4)	14	23	15.3 x 17.3 x 6.7
Urban Electric Power	Ohm-20	ZnMNO2	8.8	395	25 x 9.6 x 62
Tesla	Megapack 2	Li-ion (LMC)	3000		
Generac	M3	Li-ion (NMC)	9	175.8	3*(17.3 x 17.7 x 3.5)
Generac	M4	Li-ion (NMC)	12	234.4	4*(17.3 x 17.7 x 3.5)
Generac	M5	Li-ion (NMC)	15	293	5*(17.3 x 17.7 x 3.5)
Generac	M6	Li-ion (NMC)	18	351.6	6*(17.3 x 17.7 x 3.5)
SolarEdge Technologies	BAT 10K 1P	Li-ion (LMC)	361		48 x 40 x 20
Cadenza	CI-P-1-371	Li-ion			
Northern Reliability, Inc	NRI-E1000-K24	Li-ion			

As we transition both our heavy- and light-duty vehicles to zero-emissions alternatives, EVs will be an essential tool to decarbonize. For instance, there are approximately 8,600 school buses in Connecticut that are entirely powered by fossil fuels. To achieve the transformative investment to deploy zero emission school buses (e.g., electric school buses), and associate charging infrastructure, requires successful public-private partnerships. This will result not only in a reduction of GHG emissions and local criteria pollutants, but also other opportunities (e.g., vehicle-to-grid) to improve the resilience of the grid during power outages or periods of peak electric demand.

In Connecticut, we have the public policy infrastructure to reduce the burden of energy costs through the deployment of renewable energy and increase energy security through the deployment of battery storage, with a priority towards vulnerable communities. As our state ramps up deployment of battery technology, both stationary and in transit, we are looking ahead to a future in which the batteries deployed today are retired from use. To build the sustainable future our state envisions, we need both technical and financial assistance from the DOE to support the end-of-life of lithium-ion batteries.

Category G – State and Local Collection Programs

1. **What are used batteries classified as when they are collected and stored (waste, used material, universal waste, hazardous waste)? How is the location and time impacted by this classification?**

   The Green Bank is unaware of how used batteries are classified when they are collected and stored. In consulting with the Connecticut Department of Energy and Environmental Protection ("CT DEEP"), the Green Bank has learned that batteries are regulated differently depending on whether or not they are generated in a household. Batteries that are not generated in a household are regulated as: (1) universal waste, if they are characteristically hazardous; or (2) so-called "Connecticut Regulated Waste[5]" if they are not characteristically hazardous. Batteries generated in a household are exempt from federal and state hazardous waste regulations, and can be legally disposed of with the homeowner's municipal solid waste in Connecticut, although the State strongly promotes and encourages the recycling of household batteries, especially larger types that constitute a significant fire or safety hazard if disposed of in the municipal solid waste stream. Persons that aggregate household batteries (e.g., for recycling purposes) would either have to manage them as universal waste or under Connecticut's solid waste permitting requirements.

   As the Green Bank implements Energy Storage Solutions, we anticipate a useful life of participating lithium-ion batteries of ten years.[6]

2. **What regulatory agencies have jurisdiction over used battery management at specific points in the EOL lifecycle?**

   In Connecticut the following state entities have jurisdiction over the identified areas:

   a. **Environmental** – Overseen by CT DEEP
   b. **Fire** – Overseen by the State Fire Marshall
   c. **Transportation** – Overseen by US Department of Transportation ("US DOT"), specifically the US DOT's hazardous materials regulations. CT DEEP has oversight with respect to the transportation of batteries that are regulated as universal waste.
   d. **Other** – unknown

   Connecticut could use technical and financial assistance from the DOE to determine what federal or international regulations and standards our state could adopt to support the management of batteries at specific points in the end-of-life lifecycle, especially whether there should be distinct regulation for depleted batteries versus systems with remaining charge.

   As far as the Green Bank is aware, the current guidance from the Environmental Protection Agency for consumers of mid-range to large lithium-ion batteries is:

   > *"Contact the manufacturer, automobile dealer, or company that installed the Li-ion battery for management options; do not put it in the trash or municipal recycling bins.*

[5] Connecticut-Regulated Waste

[6] For a list of participating batteries – https://energystoragect.com/submitted_ess_system_status_list/

Because of the size and complexity of these battery systems, medium and large-scale Li-ion batteries may not be able to be removed by the consumer. Refer to the manufacturer's instructions and heed warnings and safety instructions."[7]

The EPA's guidance for disposal of energy storage systems of the size and kW being installed under the Energy Storage Program, is to contact the manufacturer. However, the Green Bank is aware that there are potential environmental and fire risks which would make it hazardous for the consumer to attempt disposal of the energy storage systems without appropriate training. While the EPA's guidance puts responsibility on manufacturers to perform decommissioning, the responsibility of the battery at end-of-life has not been codified in Extended Producer Responsibility regulation, warranty information, or consumer contracts.

The State of Connecticut is currently considering whether to develop Extended Producer Responsibility laws, either independently or in conjunction with other states that have similar home and business battery storage programs. Please see Attachment C for a list of state-run storage programs that Connecticut would consider partnering with on this initiative.

3. What are the laws for compliance at the state and local level on end-of-life battery disposition?

Batteries that are classified as universal waste as described above would be subject to Section 22a-449(c)-113 of the Regulations of Connecticut State Agencies ("RCSA"), which incorporates the federal universal waste regulations at 40 CFR 273 with specified changes. Batteries that are classified as "Connecticut Regulated Waste" would be subject to Connecticut General Statutes Section 22a-454. Batteries that are generated in a household would be subject to regulation under Connecticut's solid waste regulations, i.e., RCSA Section 22a-209-1 through -17, inclusive. The US DOT's hazardous materials regulations (i.e., 49 CFR parts 100 through 180) apply to the transportation of batteries at the end of life. The Green Bank is unaware of existing transportation, storage, or disposal laws at the state and local level specific to energy storage or EV battery systems beyond the battery rules described above.

Specific to the behind-the-meter storage program co-administered by the Green Bank, within the program manual of Energy Storage Solutions,[8] it is noted:

"The decommissioning of any BESS participating in Energy Storage Solutions shall be completed by the Contractor, TPO, or another party as designed by the Contractor or TPO. The Contractor or TPO shall be held responsible by the Program Administrators for ensuring that all appropriate steps have been taken to dispose of and recycle all BESS components in such a manner that minimizes waste and environmental harm in compliance with all local, state, and federal regulations"

Connecticut could use technical and financial assistance from the DOE and the EPA to support the development of laws for compliance at the state and local level on end-of-life energy storage and EV battery processing.

[7] EPA, "Used Lithium-ion Batteries", https://www.epa.gov/recycle/used-lithium-ion-batteries.

[8] https://energystoragect.com/wp-content/uploads/2022/01/ESS-Program-Manual_Final-1-14-2022.pdf

It should be noted that the DOE SunShot Initiative was an excellent tool that helped Connecticut, and its 169 municipalities, work towards standardized permitting for residential solar PV. Perhaps there is a SunShot Initiative (or EarthShot Initiative) best practice there for the DOE to consider with respect to battery storage recycling.

4. **How do you keep track of regulations at the state and local level and how do you determine your compliance? Are there multi-state agreements with the handling and storage of materials (as materials travel between states)?**

   The Green Bank is not currently keeping track of regulations at the state and local level in order to determine compliance, as this is largely the responsibility of CT DEEP. The Green Bank will work with CT DEEP to determine how to keep track of regulations at the state and local level and how to determine compliance.

   While not specific to battery waste, regionally, CT DEEP works with Northeast Waste Management Officials (NEWMOA) to communicate with other northeast states on interstate regulatory issues and promote consistency. The Green Bank is unaware of other multi-state agreements with regards to the handling and storage of materials.

   NEWMOA is a multi-state funded initiative and could use technical and financial assistance from the DOE to better keep track of regulations at the state and regional level. NEWMOA has not yet looked specifically at storage or EV battery waste but would benefit from support to coordinate end-of-life management best practices for handling, storing, and processing these resources. Connecticut intends to continue to work through NEWMOA with the EPA Region 1 and Region 2 as well as other neighboring states on multi-state agreements.

5. **What liabilities are these programs responsible for? And how are these programs insured?**

   Hazardous waste contractors and transporters are permitted by the state and as a condition of obtaining a permit must carry certain levels of insurance and surety. At the state level, there are no battery/storage-specific permits.

   For contractors to participate in Energy Storage Solutions, they must provide both Workmanship Warranty and General Liability Insurance:[9]

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

   - **General Liability Insurance** – All Eligible Contractors and subcontractors must carry at least one million dollars in general liability insurance to participate in Energy Storage Solutions. Additionally, all Eligible Contractors and subcontracts must carry worker's compensation, and auto insurance.

   It should also be noted that in Energy Storage Solutions:

[9] Ibid (pp. 24)

"Neither the Connecticut Green Bank, Eversource Energy, United Illuminating (Program Administrators) nor the State of Connecticut: (1) endorses the workmanship of any Contractor; nor (2) guarantees, warranties, or in any way represents or assumes liability for any work proposed or carried out by a Contractor. Additionally, the Program Administrators are not responsible for assuring the design, engineering, and construction of any BESS is proper or complies with any particular laws, regulations, codes, licensing, certification and permit requirements, or industry standards. The Program Administrators do not make any representations of any kind regarding the results to be achieved by the system or the adequacy or safety of such measures."[10]

6. **Is there an estimate of building requirements based on quantity of batteries stored? Is this variable depending on where the batteries are stored?**

   The Green Bank is unaware of an estimate of building requirements based on the quantity of batteries stored. In Connecticut, CT DEEP would individually evaluate and permit battery storage facilities, including reviewing plans for the location for storing batteries at each facility.

   Connecticut could use technical and financial assistance from the DOE to determine these building requirements for batteries stored.

7. **Do you have examples of education and outreach programs, materials, or approaches to improve recycling, source reduction, recycling, recovering, reusing, repairing, or refurbishing that are associated with demonstrated results?**

   While Connecticut has numerous education campaigns in the waste sector, the Green Bank does not have examples of education and outreach programs, materials, or approaches to improve recycling, source reduction, recycling, recovering, reusing, repairing, or refurbishing that are associated with demonstrated results that are specific to EV battery or energy storage disposal.

   Connecticut could use technical and financial assistance from the DOE on consumer education and outreach programs on battery recycling. As stated above, perhaps there are lessons to be learned from the SunShot Initiative and soft-cost reduction strategies that can inform a DOE approach to battery storage recycling (i.e., EarthShot Initiative).

8. **Can you direct us to any specific examples of useful consumer educational materials or other content that states, Tribes, and units of government can adapt and use in recycling programs? What were the associated impacts and costs (financial, staff, an/or other resources) of the effective programs?**

   The Green Bank cannot direct the DOE to any specific examples of useful consumer educational materials on EV battery or energy storage recycling programs. However,

[10] Ibid (pp. 4)

Connecticut has run numerous consumer educational programs on waste such as *What Do I Do With…*[11]

9. **Can you direct us to any specific good examples of local and state coordination and/or collaboration on laws, permitting, zoning, etc. on recycling programs?**

   The Connecticut Coalition for Sustainable Materials Management ("CCSMM") has convened 100 municipalities from across the state to explore ways to reduce the amount of waste that is generated in our state, improve reuse, recycling, organics collection, support extended producer responsibility ("EPR") legislation, and consider other innovative solutions.

   The Green Bank cannot direct the DOE to any examples of local and state coordination and/or collaboration on laws, permitting, zoning, etc. specific to storage recycling programs. To our knowledge, there are no such initiatives in the state. However, as noted above, the DOE should consider a SunShot Initiative best practice approach to battery storage recycling.

Category J: Equity, Environmental, and Energy Justice (EEEJ) Priorities

1. **Please give input on how the Battery Recycling Provisions help achieve the Justice40 policy priorities that could benefit disadvantaged communities and to maximize implementation co-benefits.**

   On October 12, 2021, the Green Bank, along with the Greater Bridgeport Community Enterprises and Operation Fuel, submitted public comments into the DOE's Communities Local Energy Action Plan ("LEAP") pilot program process – see Attachment D. Within those comments, we suggested that the DOE include a "Recycling Planning and Investment Pathway" alongside all of the other pathways. Such a pathway would have sought to support the development of facilities for recycled materials (e.g., solar PV panels, battery storage, Energy Star appliances) and support workforce training.

   Since this pathway was not included within the pilot Communities LEAP program, the Green Bank would suggest that consideration be given to expanding Communities LEAP and including recycling within the eligible pathways of the program through the program(s) envisioned by DE-FOA-0002833. Expanding Communities LEAP, through its inclusion of recycling pathways, would serve to benefit the Justice40 policy priorities. Also, as noted within the comments, the DOE should consider providing additional support from potential applicants under the envisioned programs through this RFI.

2. **What program requirements or review criteria should DOE consider ensuring that regional economic growth flowing from funded projects will be shared with disadvantaged communities?**

   As battery storage recycling [and all clean energy recycling (e.g., solar PV, appliances)], is likely to be a regional opportunity, the Green Bank would suggest that the DOE work across government with the EPA to encourage regional applications and/or planning. For example,

[11] https://portal.ct.gov/DEEP/Waste-Management-and-Disposal/What-Do-I-Do-With

given the ambitious public policies and incentives for battery storage and electric vehicles in New England that are leading to significant technology adoption, EPA Region 1 and the DOE could be unifying voices to bring our states together. With the Green Bank's new scope expansion inclusion of "waste and recycling" within "environmental infrastructure," we stand ready to coordinate with the DOE, EPA, CT DEEP, and New England states to support the investment in and operation of battery storage recycling facilities.

It should be noted, per CGS 22a-20a(2)(D),[12] that "environmental justice communities"[13] in Connecticut would likely treat battery storage recycling facilities as "affecting facilities"[14] and therefore require the planning and development of such facilities to enable meaningful public participation, including a community environmental benefit agreement.

3. **How are adverse impacts of manufacturing and recycling facilities currently measured or monitored? Which materials, processes, and/or components result in the largest environmental impacts? What opportunities exist to minimize such impacts?**

   The Green Bank is not aware of how adverse impacts of manufacturing and recycling facilities are currently measured or monitored.

   Connecticut could use technical and financial assistance from the DOE to help us determine how adverse impacts of manufacturing and recycling facilities are measured and monitored, including materials, processes and/or components, in order to identify opportunities to minimize such impacts.

4. **Describe possible human health, environmental, or ecological considerations, both positive and negative (e.g., are there any air quality impacts, sensitive ecosystems, National Environmental Policy Act (NEPA) issues, environmental justice communities, other considerations) that the DOE should consider in conjunction with design and implementation of the Battery Recycling Provisions?**

   Li-ion batteries are prone to thermal runaway, fires, and explosions. Thermal runaway is an uncontrollable self-heating reaction that can lead to fires or explosions. Several things can cause the battery to overheat, including mechanical failures, overcharging the battery, a short circuit, and internal chemical reactions. The likelihood of thermal runaway increases as cells

[12] CGS 22a-20a – https://portal.ct.gov/-/media/DOT/CGSSec22a20aEnvironmentalJusticeCommunitypdf.pdf

[13] "Environmental justice community" means (A) a United States census block group, as determined in accordance with the most recent United States census, for which thirty per cent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred per cent of the federal poverty level, or (B) a distressed municipality, as defined in subsection (b) of section 32-9p;

[14] (2) "Affecting facility" means any (A) electric generating facility with a capacity of more than ten megawatts; (B) sludge or solid waste incinerator or combustor; (C) sewage treatment plant with a capacity of more than fifty million gallons per day; **(D) intermediate processing center, volume reduction facility or multitown recycling facility with a combined monthly volume in excess of twenty-five tons;** (E) new or expanded landfill, including, but not limited to, a landfill that contains ash, construction and demolition debris or solid waste; (F) medical waste incinerator; or (G) major source of air pollution, as defined by the federal Clean Air Act. "Affecting facility" shall not include (i) the portion of an electric generating facility that uses nonemitting and nonpolluting renewable resources such as wind, solar and hydro power or that uses fuel cells, (ii) any facility for which a certificate of environmental compatibility and public need was obtained from the Connecticut Siting Council on or before January 1, 2000, or (iii) a facility of a constituent unit of the state system of higher education that has been the subject of an environmental impact evaluation in accordance with the provisions of sections 22a-1b to 22a-1h, inclusive, and such evaluation has been determined to be satisfactory in accordance with section 22a-1e.

age. When burned, Li-ion batteries produce toxic sulfur dioxide fumes and may produce toxic HF.

Connecticut could use technical and financial assistance from the DOE to help us understand the possible human health, environmental, or ecological considerations from battery storage recycling facilities.

5. **How will Tribal communities or lands potentially be impacted by design and implementation of the Battery Recycling Provisions?**

   The Green Bank is unaware of how Tribal communities or lands could potentially be impacted by the design and implementation of the Battery Recycling Provisions. As the DOE's Justice40 Initiative has identified Disadvantaged Communities ("DACs") within each state, including Tribal areas, if there were technical and financial resources for states, Tribal communities could be included within community engagement efforts to assess the costs and benefits of such facility deployment.

6. **What are key equity-aligned criteria that DOE should use to evaluate and select projects in the Battery Recycling Provisions?**

   The Green Bank would prioritize the eight (8) policy priorities of the DOE's Justice40 Initiative, and therefore align them to the key-equity criteria, in the following manner when it comes to Battery Recycling Provisions:

   1) Increase energy democracy in DACs
   2) Decrease environmental exposure and burdens for DACs
   3) Increase energy resilience in DACs
   4) Increase clean energy enterprise creation and contracting (MBE/DBE) in DACs
   5) Increase clean energy jobs, jobs pipeline, and job training for individuals from DACs
   6) Increase access to low-cost capital in DACs
   7) Increase parity in clean energy technology (e.g., solar, storage) access and adoption in DACs
   8) Decrease energy burden in DACs

7. **In what ways, if any, do you anticipate battery manufacturing, recycling, and associated activities could impact the workforce? For example:**

   a. **To what extent do you anticipate job creation, loss, or changes in job quality?**

      The Green Bank anticipates job creation and high quality jobs when it comes to battery storage recycling.

   b. **To what extent do you anticipate the creation of jobs? Ongoing operations and maintenance jobs? Other jobs across the supply chain?**

      The Green Bank anticipates sustained job creation in battery storage recycling beginning in the 3 to 5 years. The Green Bank would suggest that future United States Energy and Employment Report ("USEER") take-up the opportunity for

assessing job creation when it comes to not only battery storage recycling, but also clean energy recycling in general.

c. What is needed to train, secure, and maintain a qualified workforce for these activities?

The Green Bank is unsure about what is needed to train, secure, and maintain a qualified workforce for these activities.

The Green Bank, working with its regulatory (e.g., CT DEEP, PURA), and implementation (i.e., Eversource Energy, United Illuminating) partners, have the ability to create an extended consumer [or producer] responsibility program as aspects of our initiatives. However, we are not experts and need technical and financial assistance from the DOE, including from its national labs (e.g., ReCell Center at Argonne National Laboratory), to assist us in ensuring that the clean energy economy we are building stands-up to the green economy that we want to create.

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 private capital partners to submit an application for consideration into the Revolving Loan Fund Program solicitation.

Sincerely,

Bryan Garcia
Bryan Garcia
President and CEO

Sara Harari
Sara Harari
Associate Director of Innovation and
Senior Advisor to the President and CEO

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 $2.26 billion of investment into Connecticut's clean energy economy at a 7 to 1 leverage ratio of private to public funds, supported the creation of 27,720 direct, indirect and induced jobs, reduced the energy burden on over 66,500 families and businesses, deployed nearly 510 MW of clean renewable energy, helped avoid 10.4 million tons of CO_2 emissions over the life of the projects, and generated $113.6 million in individual income, corporate, and sales tax revenues to the State of Connecticut.

Attachments

Attachment A – Energy Storage Solutions Fact Sheet (Homes)
Attachment B – Energy Storage Solutions Fact Sheet (Buildings)
Attachment C – Behind-the-Meter Storage Programs
Attachment D – Comments to DOE on Recycling Pathway under Communities LEAP

Attachment A – Energy Storage Solutions Fact Sheet (Homes)

energy storage SOLUTIONS

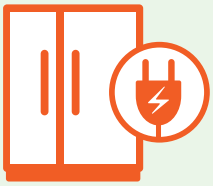
Introducing Energy Storage Solutions

Energy Storage Solutions is a new incentive program designed to help Eversource and United Illuminating customers install energy storage for their home. Installing a battery in your home can help you be prepared when extreme weather events are on the horizon. Batteries can provide backup power when the electricity goes out to keep your lights, small appliances, and medical equipment running without the need to run an onsite generator. Plus, batteries work even better when you add them to an existing solar PV system or pair them with a new one, allowing batteries to recharge with the sun's energy.

Battery Benefits

Cleaner / Quieter: Unlike generators that run on fossil fuels, batteries are a cleaner, quieter option for powering your home during an outage.

Resilient: With battery storage, you're always ready for a storm without needing to buy or store fossil fuels. Keep your lights on and your refrigerator running without the stress and hassle.



Affordable: With Energy Storage Solutions, it's more affordable than ever to purchase a battery system. Upfront and performance-based incentives allow you to save money at the time of purchase and over the life of your system. Residential customers could receive up to $7,500 upfront per installation with additional incentives as your system contributes to the utility grid. Visit **https://energystoragect.com/**.

continued >>

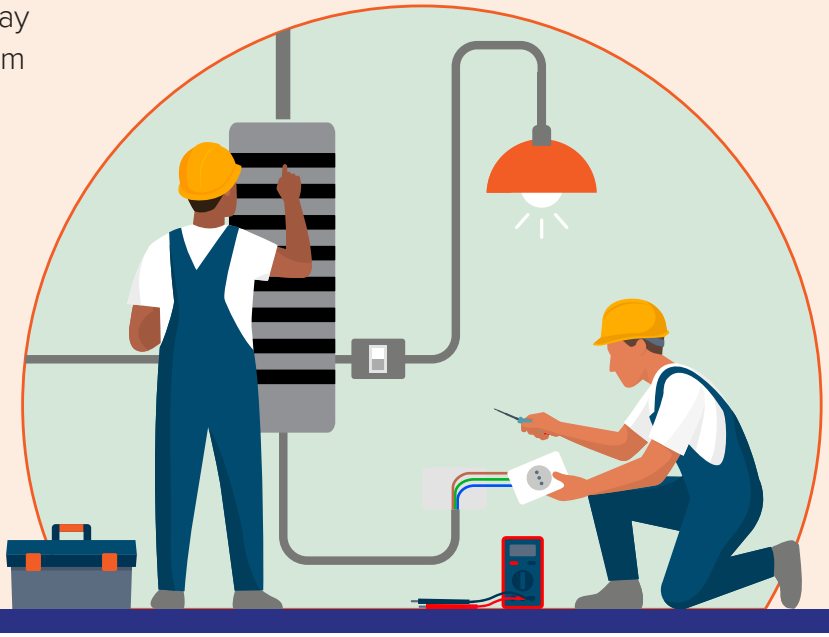
How Do I Get Started?

Talk to an eligible contractor who will help you size a battery system based on what you want to power, how long you want to power it, and where you have suitable space to install a battery system.

1 What do you want to power in an outage?
Your contractor will look at the appliances, lighting, or priority equipment you want to power in an outage to determine how much power you'll need during a power outage.

2 Where is there suitable space to install batteries?
Depending on the type, batteries may need to be located inside or outside. Your contractor may need to adjust the size of your battery system to accommodate your available space.

3 How long can the battery run without being re-charged?
The larger the battery, the longer it will be able to power your appliances and lights without being re-charged by solar PV or your homes power supply. Your contractor will help you decide on a battery size that works for the goals of your household.



To learn more about Energy Storage Solutions or get started with an eligible contractor, visit https://energystoragect.com/

energy storage SOLUTIONS

CONNECTICUT GREEN BANK

EVERSOURCE

UI An AVANGRID Company

This program is overseen by the Public Utilities Regulatory Authority (PURA), is paid for by ratepayers, and is administered by the Green Bank, Eversource, and UI.

Attachment B – Energy Storage Solutions Fact Sheet (Buildings)

energy storage SOLUTIONS

Introducing Energy Storage Solutions

Energy Storage Solutions is a new incentive program designed to help Eversource and United Illuminating customers install energy storage for their commercial, industrial and institutional properties. Installing a battery for your business, nonprofit or government facility can help you lower your building's peak demand to reduce energy costs. Batteries can also provide backup power when the electricity goes out to keep your lights on and your facility running without interruption. Upfront and performance-based incentives are available to reduce the cost of an energy storage system. Additional value may be available for customers on the grid edge, critical facilities, facilities replacing fossil fuel generators, and small businesses.

Energy Storage Solutions Benefits

Affordable: With Energy Storage Solutions, there has never been a better business case for purchasing a battery system. Upfront and performance-based incentives allow you to save money at the time of purchase and earn over the life of your system. You could receive up to 50% off the installation price with additional performance incentive payments based on the average power your battery system contributes during critical periods. Visit **https://energystoragect.com/** for details.

Resilient: With battery storage, you're always ready for a storm. Keep your business or facility running so that you can continue to serve the needs of your customers or members.

Cleaner & Quieter: Unlike generators that run on fossil fuels, batteries are a cleaner, quieter option for powering your business during an outage. They're better for the environment and friendlier for your customers, members or constituents. Battery systems tied to new or existing solar PV systems can charge during an outage.

continued >>

How Do I Get Started?

Talk to an Eligible Contractor who will help you size and identify the best location for your battery system based on your facility's needs or the core function of your business. Your contractor will help you decide on a battery size that works for the goals of your facility.

Commercial and Industrial End-Use Customer
Upfront Declining Incentive Block Structure (2022-2024)

	Effective Upfront Incentive ($/kWh)		
	Small Commercial	Medium Commercial	Large Commercial
Peak Demand	<200 kW	200 kW – 500 kW	>500 kW
Incentive for first 50 MW of Commercial Storage Projects	$200	$175	$100

Commercial and Industrial End-Use Customer
Annual Performance-Based Incentive (2022-2024)

	Years 1-5		Years 6-10	
	Summer	Winter	Summer	Winter
Season Incentive ($/kW)	$200	$25	$115	$15

To learn more about Energy Storage Solutions or get started with an eligible contractor, visit https://energystoragect.com/

energy storage SOLUTIONS

CONNECTICUT GREEN BANK

EVERSOURCE

UI An AVANGRID Company

This program is overseen by the Public Utilities Regulatory Authority (PURA), is paid for by ratepayers, and is administered by the Green Bank, Eversource, and UI.

Attachment C – Behind-the-Meter Storage Programs

Program Name	State	Program	Eligible Sectors	Description
Self-Generation Incentive Program	California	Public Utilities Commission PG&E, SCE, SoCalGas, and SDG&E	Electric and/or gas customers of PG&E, SCE, and SDG&E both residential and non-residential facilities	Offers rebates for installing energy storage technology at both residential and non-residential facilities. System must be sized according to the customer's electricity usage. Incentives for storage vary by system size, sector, and whether or not the system is claiming the ITC or not.
Battery Storage for Homeowners	California	Sacramento Municipal Utility District	Residential	Incentive level varies by engagement level. The highest incentive level ($250/kWh up to $2,500 for enrollment and additional performance payments) requires that the customer allow their Tesla Powerwall to be participate in peak events year-round. The second tier is to allow SMUD to optimize the battery during peak periods during the summer, and the lowest is to optimize the battery using a time of day rate.
Holy Cross Energy – Renewable Energy Rebate Program	Colorado	Holy Cross Energy	Available for commercial, local government, nonprofit, residential, schools, federal government, agricultural, and	$250 per kW incentive for energy storage systems up to 25 kW; if systems are enrolled in the Distribution Flexibility Program, they are eligible for an incentive of $500 per kW
Residential Battery Storage Program	Colorado	Fort Collins Utilities	Residential systems (standalone or PV paired)	Upfront incentive of $100 per kWh up to $1,500 for new installation
Energy Storage Solutions	Connecticut	Connecticut Green Bank, United Illuminating & Eversource	Available for commercial and residential sectors	Offers both an upfront and performance incentive to commercial and residential customers installing storage.
JEA Battery Incentive Program	Florida	Jacksonville Electric Authority (JEA)	Available for commercial and residential sectors	Rebate of $4,000 for residential and commercial storage systems that have a minimum capacity rating of 6 kWh. System must be paired with a renewable generation system that charges the battery.

Program Name	State	Program	Eligible Sectors	Description
Battery Bonus	Hawaii	Hawaiian Electric	Residential or commercial customers with PV-paired energy storage systems	Incentive for customers to add energy storage to PV systems. Participants must commit to a firm two-hour schedule for battery dispatch.
Wattsmart Battery Program	Idaho, Wyoming, and Utah	Rocky Mountain Power	Residential and commercial customers with storage systems paired with solar PV	Upfront incentive of $400 per kW and participation incentive of $15 per kW for residential customers. Participation requires batteries to be called upon during events.
Solar Massachusetts Renewable Target (SMART) Program	Massachusetts	Department of Energy Resources	Commercial, industrial, govrnment, nonprofit, resdiential	Solar projects co-located with storage will receive a compensation rate adder as part of their per kWh incentive through the program
ConnectedSolutions	Massachusetts	MassSave - National Grid, Eversource, Cape Light Compact	Residential and small business	Performance-based incentive of $275 per kW (National Grid), $225 per kW (Eversource), for participating in summer events. Standalone batteries are eligible.
NV Energy – Energy Storage Incentive Program	Nevada	Nevada Power Co, Sierra Pacific Power Co	Available for commercial, local government, nonprofit, residential, schools, federal government, agricultural, and institutional for energy storage sited with a previously installed renewable energy system or	Incentives available for residential systems between 4 and 100 kW and commercial systems between 4 and 1,000 kW. Incentives are and dependent on system size and system type (commercial or residential). The max residential system incentive is the lessor of 50% of the system cost of $3,000.
Liberty Battery Storage Program	New Hampshire	Liberty	Residential	Monthly cost to participants for the battery. Liberty Utilities programs the battery to charge at certain times. Customers are eligible for net metering.
NYSERDA Retail Energy Storage Incentive Program	New York	NYSERDA	Available for commercial, industrial, residential, government, nonprofit, agricultural	Incentives for behind-the-meter energy storage projects that are less than 5 MW (AC) that are connected to the customer's meter or directly to the distribution system. Incentives are based on system capacity up to a system size of 15 MWh per system. Uses a block system with declining incentive levels.

Program Name	State	Program	Eligible Sectors	Description
PSEG Long Island Battery Storage Rewards	New York	PSEG	Residential and commercial customers with either standalone battery or PV-	Performance-based incentive during summer month events (amount not specified). Participation is done through an aggregator.
Solar + Storage Rebate Program	Oregon	Oregon Department of Energy	Available for residential and low income residential	This program offers incentives for residential solar plus storage systems with higher rebates for low-income customers. The standard storage incentives are $300 per kWh of installed capacity up to the lessor of $2,500 or 60% of net costs. Low-income customers are eligible for up to $15,000 or 60% of system costs, whichever is lower.
PGE Smart Battery Pilot	Oregon	PGE	Residential standlone or PV-paired systems	Rebate of $1,000 to $3,000 for installing a battery (only available in PGE Smart Grid Test Bed communities), and $20 per month if the battery only charges from your solar system.
Battery Program	Rhode Island	Rhode Island Energy	Residential batteries paired with on-site renewable generation or standalone systems (limited incentives)	Performance-based incentive of $400 per kW for summer events.
Bring Your Own Device Program	Vermont	Green Mountain Power	Residential and small business customers	Upfront incentive of $850 per kW enrolled for three hour discharge, $950 per kW enrolled for four hour discharge. Extra $100 per kW in certain areas.
APS Storage Rewards	Arizona	APS	Residential customers in targeted areas	APS owns and operates the battery while customers receive a one-time enrollment bill credit of $500.

Attachment D – Comments to DOE on Recycling Pathway under Communities LEAP

October 12, 2021

U.S. Department of Energy
Offices of EERE, Electricity, Policy, Fossil Energy and Carbon Management, and Economic Impact and Diversity
Communities LEAP Pilot
CommunitiesLEAPInfo@hq.doe.gov

SUBJECT: Comments from the Greater Bridgeport Community Enterprises, Operation Fuel, and Connecticut Green Bank – Communities LEAP Pilot

To Whom it May Concern:

The Greater Bridgeport Community Enterprises ("GBCE"), Operation Fuel, and the Connecticut Green Bank ("Green Bank") (i.e., together the "Respondents"), appreciate the U.S. Department of Energy's ("DOE") efforts through the Office of Energy Efficiency and Renewable Energy ("EERE"), Electricity, Policy, Fossil Energy and Carbon Management, and Economic Impact and Diversity for issuing this competitive opportunity – Communities Local Energy Action Plan ("LEAP") Pilot – which will support 24-36 communities with technical assistance services.

As diverse leaders of organizations serving underserved communities throughout Connecticut, the Respondents support the Justice 40 Initiative by the DOE to ensure that everyone is afforded an opportunity to participate fully in its programs, opportunities, and resources. The following are comments by the Respondents on the Communities LEAP Pilot:

- **Include "Recycling Planning and Investment" Pathway** – the Communities LEAP Pilot identifies seven (7) pathways to clean energy-related economic development with an emphasis on developing energy jobs and workforce skills, as well as promoting minority-owned businesses and small- to mid-size businesses. Consideration should be given to including an additional pathway called "Recycling Planning and Investment" that would seek to support the development of facilities for recycled materials (e.g., solar PV panels, battery storage, Energy Star appliances), support workforce training, and acquire the necessary machinery arising from the successful growth and development of a clean energy economy. The Respondents would be happy to work with the DOE staff to develop a "Recycling Planning and Investment" pathway to be included in Appendix A.

- **Race to All vs. Race to the Top** – the Respondents appreciate the efforts by the DOE to support competitive solicitations for technical assistance through programs such as the Communities LEAP Pilot – such competitive solicitations inspire collaboration and innovation. However, for those communities that are encouraged to register and apply, but are unsuccessful – this can be devastating to expectations and progress made within a community and result in less participation

(e.g., application) in future DOE solicitations. The Respondents would suggest that the DOE consider additional support like:

- **Applicant Technical Assistance** - provide potential applicants with preproposal stage technical assistance directed to preparing community actors for the application process. For example, the DOE could initiate a program that prepares communities and their environmental justice groups to respond to opportunities presented by the Administration.

- **Additional Program Resources** - increasing the budget for technical assistance to support local communities develop their Launch or Accelerate develop their project concepts (i.e. go beyond supporting up to 36 applicants and unlock it to thousands of environmental justice communities). Perhaps state and local governments, and/or philanthropic institutions (e.g., community-based foundations) would be interested in co-funding such an effort alongside the DOE to ensure that the race for environmental justice is for all and not the select few.

- **Participatory Democracy and Unheard Voices** – everyone within the environmental justice community recognizes the challenges of having consistent participation in regulatory, statutory, and other political processes (e.g., planning) in order to effectively advocate for vulnerable communities. The Respondents are unsure as to what the DOE can do to support the foundational needs of community engagement in local democracies, but offer-up the notion that there needs to be steady representation that can advocate on behalf of the community in order to develop and then implement actions to advance the local clean energy economy. Perhaps each state, or DOE-identified environmental justice communities within a state, could be provided access to an experienced consulting firm like 38 North Solutions, APPRISE, Institute for Sustainable Communities who can support the advocacy, facilitation, guidance, and other needs of the community.

- **Eligible Entities: Local, Tribal, or Territorial Government Entity** – making steady progress in environmental justice communities to advance the benefits of the clean energy economy can ebb-and-flow with local politics albeit new leadership, changing staff, or other dynamics. The Respondents would recommend that all levels of formal and informal government be allowed to be considered as part of multi-stakeholder teams, so as to navigate the ever-changing transitions of leadership in government – "Include at least one neighborhood revitalization zone, local, regional, state, tribal, or territorial government entity."

We stand ready as minority-led organizations from Connecticut to work with the DOE to advance its Justice 40 Initiatives to enable our communities to access the economic and environmental benefits of clean energy.

Sincerely,

/Brenda Watson/
Brenda Watson
Executive Director
Operation Fuel

/Adrienne Farrar Houël/
Adrienne Farrar Houël
President and CEO
Greater Bridgeport Community Enterprises

/Bryan Garcia/
Bryan Garcia
President and CEO
Connecticut Green Bank

CONNECTICUT
GREEN BANK℠

75 Charter Oak Ave
Suite 1 - 103
Hartford, CT 06106

700 Canal Street, 5th Floor
Stamford, CT 06902