CONNECTICUT
GREEN BANK SM

Board of Directors

Meeting Date
October 26, 2018

CONNECTICUT
GREEN BANK

Board of Directors

Catherine Smith, Chair

Commissioner, CT Department of Economic and Community Development (DECD)

Rob Klee, Vice Chair

Commissioner, CT Department of Energy and Environmental Protection (DEEP)

Betsy Crum

Former Executive Director, Women's Housing Institute

Gina McCarthy

Former Administrator, Environmental Protection Agency

Thomas M. Flynn

Managing Member, Coral Drive Partners LLC

Denise L. Nappier

Treasurer, State of Connecticut

Eric Brown

Senior Counsel, CT Business & Industry Association

Matthew Ranelli, Secretary

Partner, Shipman & Goodwin LLP

John Harrity

President, Connecticut State Council of Machinists

Kevin Walsh

GE Energy Financial Services' Power and Renewable Energy

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

CONNECTICUT
GREEN BANK

October 19, 2018

Dear Board of Directors:

We have a regular meeting scheduled for next week for Friday, October 26, 2018 from 9:00-11:00 a.m. in the Colonel Albert Pope Board Room of the Green Bank at 845 Brook Street, Rocky Hill, CT 06067.

In advance, please forgive me! There is a lot of material in this mailing. I will try and point out the key items requiring your attention in **"red"** below.

On the agenda we have the following items:

- **Consent Agenda** – approval of the meeting minutes for September 18, 2018, final FY 2018 progress to target memos with redlined revisions, **2019 regular board and committee meeting schedules**, and tax revenue generation methodology. And we have also included a number of various report outs, including loan loss decision framework quarterly report, FY 2019 progress to target memo for Q1, **Bridgeport Thermal Loop Project Update**, **Green Bank Impact Report**, and the **Nissan Leaf Special Offer**. For those in the market for a new car, Nissan has provided through the Green Bank, a special offer for all Connecticut ratepayers.

- **Cash Flow Update** – we will discuss the status of our cash position.

- **Committee Recommendations** – recommendations by the Audit, Compliance and Governance Committee of various audits, including **FY 2018 CAFR** and federal single audit report. The FY 2018 CAFR is long, but each of you might find various points of interest from its comprehensive contents. We will also discuss some other issues recently raised by the Auditors of Public Account including severances and governance.

- **Investment Business** – as we continue to implement the Sustainability Plan, we have a number of transactions that we are bringing to you for your review and approval, including:

    a. **Cargill Falls Hydro** – an increase in our investment now that the mixed-use commercial and residential property development is making progress;
    b. **Canton Hydro Project** – a new 1 MW small hydro project located on a DEEP property that will benefit from virtual net metering;
    c. **Green Bank Solar PPA** – working with IPC, the Green Bank will raise resources to support solar PPA financing on underserved credits (e.g., non-profits, small business, etc.);
    d. **Groton Naval Sub-Base Project** – further supporting the economic development and environmental protection interests of the fuel cell industry, we are assembling a financing facility in support of FuelCell Energy for an important national project;

e. **C-PACE** – we have typical solar PV project located on a warehouse and storage facility; and
f. **Small Business Energy Advantage** – in collaboration with the Connecticut Energy Efficiency Fund through the efforts of the Joint Committee, we are ready to recommend a private capital financing facility for small business (including municipalities) energy efficiency projects.

- **Incentive Business** – the finance and infrastructure teams will provide and update on the SHREC securitization.

- **Executive Session** – the board will go into executive session to discuss personnel related matters regarding the FY 2018 performance reviews of the officers.

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

We look forward to seeing you next week. Have a great weekend!

Sincerely,

Bryan Garcia
President and CEO

AGENDA

Board of Directors of the
Connecticut Green Bank
845 Brook Street
Rocky Hill, CT 06067

Friday, October 26, 2018
9:00-11:00 a.m.

Staff Invited: George Bellas, Craig Connolly, Mackey Dykes, Brian Farnen, Bryan Garcia, Ben Healey, Dale Hedman, Bert Hunter, Kerry O'Neill, Eric Shrago, and Kim Stevenson

1. Call to order

2. Public Comments – 5 minutes

3. Consent Agenda – 5 minutes

4. Cash Flow Update of the Connecticut Green Bank – 15 minutes

5. Committee Recommendations and Updates – 30 minutes

    a. Audit, Compliance, and Governance Committee – 30 minutes

        i. Comprehensive Annual Financial Report
        ii. Auditors of Public Account – Severance Issues
        iii. Governance Transitions

6. Investment Business Recommendations – 60 minutes

    a. Cargill Falls Hydro Project – From MacArthur Foundation to C-PACE – 10 minutes
    b. Canton Hydro Project – 10 minutes
    c. Green Bank Solar PPA with IPC – 10 minutes
    d. FuelCell Energy – CMEEC / Groton Naval Sub Base Project – 10 minutes
    e. C-PACE Transaction – Norwalk – 5 minutes
    f. Small Business Energy Advantage – 15 minutes

7. Incentive Business Updates and Recommendations – 10 minutes

    a. SHREC Update

8. Executive Session – Personnel Matters – 10 minutes

9. Adjourn

Next Regular Meeting: Friday, December 14, 2018 from 9:00 -11:00 a.m.
Connecticut Green Bank, 845 Brook Street, Rocky Hill, CT

RESOLUTIONS

Board of Directors of the
Connecticut Green Bank
845 Brook Street
Rocky Hill, CT 06067

Friday, October 26, 2018
9:00-11:00 a.m.

Staff Invited: George Bellas, Craig Connolly, Mackey Dykes, Brian Farnen, Bryan Garcia, Ben Healey, Dale Hedman, Bert Hunter, Kerry O'Neill, Eric Shrago, and Kim Stevenson

1. Call to order

2. Public Comments

3. Consent Agenda

Resolution #1

Motion to approve the meeting minutes of the Board of Directors for August 21, 2018 and September 18, 2018.

Resolution #2

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

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

WHEREAS, on July 22, 2016, the Board of Directors of the Connecticut Green Bank approved a Comprehensive Plan for FY 2017 and FY 2018, including an annual budget and targets for FY 2018, which were revised on December 15, 2017 per a Sustainability Plan as a result of the legislative sweeps; and

WHEREAS, on July 27, 2018, the Board of Directors of the Connecticut Green Bank approved of the draft Program Performance towards Targets for FY 2018 memos for the Infrastructure, Residential, Commercial, Industrial, and Institutional sectors.

NOW, therefore be it:

RESOLVED, that Board has reviewed and approved the restated red-line Program Performance towards Targets for FY 2018 memos dated October 26, 2018, which provide an overview of the performance of the Infrastructure, Residential, Commercial, Industrial, and Institutional sectors with respect to their FY 2018 targets.

RESOLVED, that Board has also reviewed and approved the Investment and Public Benefit Performance memo dated October 26, 2018.

Resolution #3

Motion to approve the Regular Meeting Schedules for 2019 for the Board of Directors, ACG Committee, B&O Committee, and Deployment Committee.

Resolution #4

WHEREAS, the Connecticut Green Bank and the Connecticut Department of Revenues Services working with Navigant Consulting to assess tax revenue generation from investments in clean energy deployment;

WHEREAS, DRS has demonstrated support for the tax revenue generation methodology as a reasonable estimation; and

WHEREAS, the Audit, Compliance, and Governance Committee at a meeting on October 10, 2018, reviewed and now recommends that the Board of Directors (the "Board") approve the proposed Connecticut Green Bank and DRS Evaluation Framework – Societal Perspective – Tax Revenue Generation Methodology documentation;

NOW, therefore be it:

RESOLVED, that the Board approves the proposed Connecticut Green Bank and DRS Evaluation Framework – Societal Perspective – Tax Revenue Generation Methodology documentation to be used for reporting, communication, and other purposes as deemed necessary.

4. Cash Flow Update of the Connecticut Green Bank

5. Committee Recommendations and Updates

    a. Audit, Compliance, and Governance Committee

        i. Comprehensive Annual Financial Report

Resolution #5

WHEREAS, Article V, Section 5.3.1(ii) of the Connecticut Green Bank ("Green Bank") Operating Procedures requires the Audit, Compliance, and the Governance Committee (the

"Committee") to meet with the auditors to review the annual audit and formulation of an appropriate report and recommendations to the Board of Directors of the Green Bank (the "Board") with respect to the approval of the audit report;

WHEREAS, the Committee met on October 10, 2018 and recommends to the Board the approval of the proposed draft Comprehensive Annual Financial Report (CAFR) and draft Federal Single Audit Report contingent upon no further adjustments to the financial statements or additional required disclosures which would materially change the financial position of the Green Bank as presented.

NOW, therefore be it:

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

ii. Auditors of Public Account – Severance Issues

iii. Governance Transitions

6. Investment Business Recommendations

a. Cargill Falls Hydro Project – From MacArthur Foundation to C-PACE

Resolution #6

WHEREAS, the Board of Directors ("Board") of the Connecticut Green Bank ("Green Bank") previously approved a C-PACE benefit assessment with a not-to-exceed amount of $4,700,000 to Historic Cargill Falls Mill, LLC ("HCFM"), the property owner of 58 Pomfret Street, Putnam, CT to finance the construction of specified clean energy measures (the "Project") in line with the State's Comprehensive Energy Strategy and the Green Bank's Strategic Plan;

WHEREAS, the Project is part of a larger property redevelopment effort (the "Mill Redevelopment") that requires gap financing in the amount of $1,500,000 to achieve closing on approximately $30,000,000 in total funds;

WHEREAS, the Mill Redevelopment includes numerous energy conservation measures that align with the goals and priorities of the Green Bank's multifamily housing program;

WHEREAS, the Green Bank continues to find that the Project will enjoy a savings-to-investment ratio greater than 1.0x, as required by statute; and

WHEREAS, the Green Bank now seeks to amend its outstanding C-PACE financing agreement ("Financing Agreement") with HCFM to provide up to $1,500,000 in new money for the Mill Redevelopment effort, inclusive of finalizing the existing Project work.

NOW, therefore be it:

RESOLVED, that the President of the Green Bank and any other duly authorized officer of the Green Bank is authorized to execute and deliver an amended Financing Agreement in a total amount not to exceed the sum of (i) the existing C-PACE benefit assessment, plus any and

all interest accrued, plus (ii) $1,500,000, with terms and conditions consistent with the memorandum submitted to the Board dated October 19, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 180 days from October 26, 2018; and

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

b. Canton Hydro Project

Resolution #7

WHEREAS, in accordance with (1) the statutory mandate of the Connecticut Green Bank ("Green Bank") to foster the growth, development, and deployment of clean energy sources that serve end-use customers in the State of Connecticut, (2) the State's Comprehensive Energy Strategy and (3) Green Bank's Comprehensive Plan for Fiscal Years 2015 and 2016 (the "Comprehensive Plan"), Green Bank continuously aims to develop financing tools to further drive private capital investment into clean energy projects;

WHEREAS, Canton Hydro, LLC ("Developers") was awarded exclusivity by the Town of Canton to redevelop a 1 MW hydroelectric facility located at the Upper Collinsville Dam ("Dam"), on the Farmington River, in Canton, Connecticut (the "Project") and has requested financing support from the Green Bank;

WHEREAS, Green Bank staff recommends that the Green Bank Board of Directors ("Board") approve subordinate debt financing in an amount to exceed $1,200,000 along with an unfunded guaranty, in an amount not to exceed $500,000 to support the Project.

NOW, therefore be it:

RESOLVED, that the Green Bank Board of Directors hereby authorize staff to execute definitive documentation materially based on the term sheet and the terms and conditions set forth in this due diligence package dated October 26, 2018 for financial support in the form of a subordinate debt financing in an amount not to exceed $1,200,000 and a guaranty in an amount not to exceed $500,000;

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

c. Green Bank Solar PPA with IPC

Resolution #8

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

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

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

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

NOW, therefore be it:

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

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

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

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

d. FuelCell Energy – CMEEC / Groton Naval Sub Base Project

Resolution #9

WHEREAS, in accordance with (1) the statutory mandate of the Connecticut Green Bank ("Green Bank") to foster the growth, development, and deployment of clean energy sources that serve end-use customers in the State of Connecticut, (2) the State's Comprehensive Energy Strategy ("CES") and Integrated Resources Plan ("IRP"), and (3) Green Bank's Comprehensive Plan for Fiscal Years 2018 and 2019 (the "Comprehensive Plan") in reference to the CES and IRP, Green Bank continuously aims to develop financing tools to further drive private capital investment into clean energy projects;

WHEREAS, FuelCell Energy, Inc., of Danbury, Connecticut ("FCE") has used previously committed funding (the "Bridgeport Loan") from Green Bank to successfully develop a 15 megawatt fuel cell facility in Bridgeport, Connecticut (the "Bridgeport Project"), and FCE has

operated and maintained the Bridgeport Project without material incident, is current on payments under the Bridgeport Loan, and has received approval from the Green Bank for funding from the Green Bank (the "Triangle Loan") to develop a 3.7 megawatt high efficiency fuel cell project in Danbury, Connecticut (the "Triangle Project");

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

WHEREAS, staff has considered the merits of the Project and the ability of FCE to construct, operate and maintain the facility, support the obligations under the Loan throughout its 15-year term, and as set forth in the due diligence memorandum dated October 26, 2018, has recommended this support be in the form of a term loan not to exceed $5,000,000, secured by all project assets, contracts and revenues as well as a and limited payment guarantee of FCE (the "Credit Facility");

WHEREAS, Green Bank staff recommends that the Green Bank Board of Directors ("Board") approve of the Credit Facility, in an amount not to exceed $5,000,000.

NOW, therefore be it:

RESOLVED, that the Green Bank Board of Directors hereby approves the Credit Facility in an amount not to exceed $5,000,000 for the Project, as a strategic selection and award pursuant to Green Bank Operating Procedures Section XII; and

RESOLVED, that the President of the Green Bank and any other duly authorized officer is authorized to take appropriate actions to provide the Credit Facility to FCE (or a special purpose entity wholly-owned by FCE) in an amount not to exceed $5,000,000 with terms and conditions consistent with the memorandum submitted to the Board dated October 26, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 180 days from the date of authorization by the Board of Directors; and

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

e. C-PACE Transaction – Norwalk

Resolution #10

WHEREAS, pursuant to Section 157 of Public Act No. 12-2 of the June 12, 2012 Special Session of the Connecticut General Assembly and as amended (the "Act"), the Connecticut Green Bank (Green Bank) is directed to, amongst other things, establish a commercial sustainable energy program for Connecticut, known as Commercial Property Assessed Clean Energy ("C-PACE");

WHEREAS, the Green Bank Board of Directors (the "Board") has approved a $40,000,000 C-PACE construction and term loan program;

WHEREAS, the Green Bank seeks to provide a **$1,024,636** construction and (potentially) term loan under the C-PACE program to 310 Wilson Avenue LLC., the building owner of 310

Wilson Avenue, Norwalk, Connecticut (the "Loan"), to finance the construction of specified clean energy measures in line with the State's Comprehensive Energy Strategy and the Green Bank's Strategic Plan; and

WHEREAS, the Green Bank may also provide a short-term unsecured loan (the "Feasibility Study Loan") from a portion of the Loan amount, to finance the feasibility study or energy audit required by the C-PACE authorizing statute, and such Feasibility Study Loan would become part of the Loan and be repaid to the Green Bank upon the execution of the Loan documents.

NOW, therefore be it:

RESOLVED, that the President of the Green Bank and any other duly authorized officer of the Green Bank is authorized to execute and deliver the Loan and, if applicable, a Feasibility Study Loan in an amount not to be greater than one hundred ten percent of the Loan amount with terms and conditions consistent with the memorandum submitted to the Board dated October 19, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 120 days from the date of authorization by the Board of Directors;

RESOLVED, that before executing the Loan, the President of the Green Bank and any other duly authorized officer of the Green Bank shall receive confirmation that the C-PACE transaction meets the statutory obligations of the Act, including but not limited to the savings to investment ratio and lender consent requirements; and

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

f. Small Business Energy Advantage

Resolution #11

WHEREAS, pursuant to Conn. Gen. Stat. Section 16-24n the Connecticut Green Bank ("Green Bank") has a mandate to develop programs to finance clean energy investment for small business, industrial, and municipal customers in the State;

WHEREAS, recapitalizing the Small Business Energy Advantage ("SBEA") program with private sector capital is a recognized priority in the Green Bank's Comprehensive Plan and is a goal of the CT Energy Efficiency Board and Green Bank Joint Committee;

WHEREAS, The Connecticut Light and Power Company d/b/a Eversource Energy and The United Illuminated Company (together, the "Utilities") have requested the Green Bank's assistance sourcing low cost private sector capital;

WHEREAS, the Green Bank released a Request for Proposals for Small Business Energy Advantage Program Alternative Financing Solutions (the "RFP") on May 2, 2018;

WHEREAS, Amalgamated Bank responded to the RFP with a comprehensive and flexible solution offering the lowest cost capital to recapitalize the SBEA program;

WHEREAS, Green Bank staff, together with Utility staff and the EEB, has selected Amalgamated's proposal to recapitalize the SBEA program and now recommends that the Green

Bank support the recapitalized SBEA Loan Purchase Facility by committing $5 million to the facility structure; and

WHEREAS, Eversource will continue to make funding available from the Connecticut Energy Efficiency Fund ("CEEF") to reimburse loan losses and administrative costs associated with the recapitalized SBEA program.

NOW, therefore be it:

RESOLVED, that the President of the Green Bank and any other duly authorized officer of the Green Bank, is authorized to execute and deliver agreements with the relevant parties (including but not limited to Amalgamated, the Utilities, and CEEF) to invest in the SBEA Loan Purchase Facility with terms and conditions materially consistent within the memorandum submitted to the Board dated October 26, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 270 days from the date of authorization by the Board; and

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

7. Incentive Business Updates and Recommendations

    a. SHREC Update

8. Executive Session – Personnel Matters

9. Adjourn

Next Regular Meeting: Friday, December 14, 2018 from 9:00 -11:00 a.m.
Connecticut Green Bank, 845 Brook Street, Rocky Hill, CT

CONNECTICUT GREEN BANK SM

Board of Directors Meeting

October 26, 2018

Colonel Albert Pope Board Room

Board of Directors

Agenda Item #1

Call to Order

Board of Directors

Agenda Item #2

Public Comments

CONNECTICUT GREEN BANK

Board of Directors

Agenda Item #3

Consent Agenda

Consent Agenda

Resolutions 1 through 4

1. **Meeting Minutes** – approval of meeting minutes of August 21, 2018 and September 18, 2018
2. **Progress to Targets** – approval of final FY 2018 progress to target memos for the program sectors and overall
3. **Meeting Schedules** – approval of the 2019 regular board and committee meeting schedule
4. **Tax Revenue Generation Methodology** – approval of the methodology to estimate sales, individual and corporate income tax generation from clean energy investment

- **Loan Loss Reserve Decision Framework** – Q1 report
- **FY 2019 Progress to Targets** – Q1 report
- **Bridgeport Thermal Loop Project** – Update
- **Green Bank Impact Report** – FY 2012 through FY 2018
- **Nissan Leaf** – Special Offer

Board of Directors

Agenda Item #4

Cash Flow Update

Cash Flow Projections By Segment

- Cash flow model presented to Board in May has been updated with actual data through September.
- Total unrestricted cash balance as of September 30th was $15.4 million. Current cash balance is $15.0 million.
- $6 million of the available $16 million short term LOC secured by SHREC revenues has been drawn down as of September 30th.
- Cash flow projections reflect the planned securitization of SHREC revenues in November. Portion of proceeds will be used to repay the short term LOC and purchase the Hannon CPACE portfolio.

Board of Directors

Agenda Item #5ai

Committee Recommendations and Updates

Audit, Compliance and Governance Committee

FY 2018 CAFR

FY 2018 CAFR
Audit Results

- Audit of financial statements, notes and required supplementary information preformed by Blum Shapiro.
- Unmodified “clean” audit opinion will be issued.
- Report on internal control and compliance at the Financial Statement level will be issued to the Board.
- No material weaknesses or significant deficiencies in internal controls were identified.
- No instances of noncompliance with internal controls over financial reporting were identified.

FY 2018 CAFR

Audit Results (continued)

- A report will be issued to the Board with required Auditor Communications.
- No transactions were entered into during the year for which there is a lack of authoritative guidance or consensus.
- All significant transactions have been recognized in the financial statements in the proper period.
- Significant management estimates included in the financial statements:
  - ✓ Loan Loss Reserves
  - ✓ Swap fair value calculation
  - ✓ Net pension and OPEB liabilities
  - ✓ Asset retirement obligation for solar facilities under lease

FY 2018 CAFR
Audit Results (continued)

- Blum Shapiro informed the ACG Committee that they did not encounter significant difficulties in dealing with management in performing and completing the audit.
- No uncorrected misstatements were identified in connection with the audit of the financial statements for the fiscal year ended June 30, 2018.
- No disagreements between the auditors and management regarding financial accounting, reporting or auditing that would be significant to the financial statements were encountered.
- Blum Shapiro did not inform the ACG of any other audit findings or issues that required their attention.

FY 2018 CAFR
Audit Team Contact Information

Ronald W. Nossek, CPA – Engagement Partner

401-330-2743

rnossek@blumshapiro.com

Jessica Aniskoff, CPA – Engagement Manager

860-570-6451

janiskoff@blumshapiro.com

Board of Directors

Agenda Item #5aii

Committee Recommendations and Updates

Auditors of Public Account – Severance Issues

Auditors of Public Account

Severance Agreements

- **Criteria** – sound business practices dictate that payroll expenses should be necessary and reasonable in nature and amount.
- **Condition** – eliminated three (3) positions in the audit period while providing maximum severance equal to 26 weeks totaling about $150,000
- **Effect** – severance payments may not have been a prudent use of resources
- **Agency Response**
  - **Employee Handbook** – all staff are "at will" employees
  - **Authority** – Section 5.3.2. of Bylaws allows B&O Committee to determine matters of employee separation and severance to assure "…the **just and fair treatment of all employees** of the Green Bank…"
  - **Determination** – employees severed [Note – Marketing Department restructuring] had a combined 36.5 years of service to the State of Connecticut (minimum service was 10.0 years – closed down staple organizational program in the Clean Energy Communities program)
  - **Restructuring** – "new hires" save organization about $140,000 per year and their knowledge and skills more in-line with the direction of the organization

Auditors of Public Account
Severance Agreements (cont'd)

- **<u>APA Recommendation</u>** – revise bylaws to require separation agreements be approved by the Board of Directors based on the recommendation of the B&O Committee

- **<u>Other Options for Consideration</u>** – might include:
  - Maintain existing policy
  - Do not change the organization's bylaws, but practice APA Recommendation [Note – this is essentially what was done with the staff members who were severed as a result of the sweeps.]
  - Other options?

Board of Directors

Agenda Item #5aiii

Committee Recommendations and Updates

Governance Transitions

Board of Directors
Pending Transitions

Name	Term	Expiration Date
Catherine Smith (Chair)	Ex Officio, subject to transition 1/2019 due to election	Ex Officio
Rob Klee (Vice Chair)	Ex Officio, subject to transition 1/2019 due to election	Ex Officio
Denise Nappier Bettina Bronisz (Designee)	Ex Officio, subject to transition 1/2019 due to election	Ex Officio
Kevin Walsh	4 years from the July 1 in the year of appointment	6/30/2018
Matt Ranelli	4 years from the July 1 in the year of appointment	6/30/2019
Tom Flynn	4 years from the July 1 in the year of appointment	6/30/2019
John Harrity	4 years from the July 1 in the year of appointment	6/30/2019
Eric Brown	4 years from the July 1 in the year of appointment	6/30/2021
Elizabeth (Betsy) Crum	4 years from the July 1 in the year of appointment	6/30/2021
Gina McCarthy	4 years from the July 1 in the year of appointment	6/30/2021
TBD – Governor, RE Finance	4 years from the July 1 in the year of appointment	TBD
Bryan Garcia	Ex Officio (Non-voting)	Ex Officio

Board of Directors

Agenda Item #6a

Investment Business Recommendations

Cargill Falls Hydro Project

Historic Cargill Falls Mill

Background

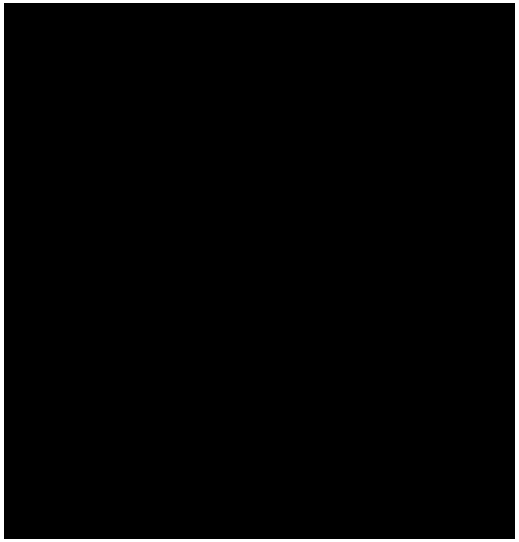
- Early Green Bank C-PACE project (originally approved in 2015)
- Hydro project came online in May 2017
- $4,700,000 invested to date (excluding accrued interest)
- Two-turbine project: larger (600 kW) is operational, having generated 1,200,000 kWh to date (in limited operation; 300 kW turbine to come online as initial mill redevelopment work begins)
- Initial ZREC and net metering revenues realized

Historic Cargill Falls Mill

Broader Multifamily Redevelopment Project

- CT Department of Housing awarded project competitive “CHAMP” funds
- Full capital stack now assembled for redevelopment effort (~$30MM):

Investor Member Federal HTC Equity
State HTC Loan
Sponsor Equity
Energy Rebates
CT Green Bank First Mortgage
DOH Champ 2nd Mortgage
Urban Acts Funds
DECD Brownfield Funds
Deferred Developer Fee
Accrued Interest
Bridge Loan
Repayment of Bridge Loan



- 82 units of workforce + affordable housing, plus commercial space

Historic Cargill Falls Mill

Rationale

- Ensure this important affordable multifamily housing project includes high-quality, above-code energy conservation measures
- Enhance the value of the Green Bank's existing hydro investment by creating sufficient onsite demand such that all hydro generation will be valued at "retail" rather than wholesale cost
- Protect the Green Bank's position with respect to our outstanding C-PACE loan by maintaining our role as the project's sole lender, now with significant overcollateralization of our position due to the broader $30 million investment into the property

Historic Cargill Falls Mill

ECMs + SIR

Steven Winter Associates, Inc.
Improving the Built Environment Since 1972

10/20/2017

Mr. Tim Sheldon, The Lofts at Cargill Falls Mill

RE: Cargill Falls Mill Energy Modeling & Efficiency Measures

Dear Mr. Sheldon,

Steven Winter Associates, Inc. (SWA) completed the energy analysis for Cargill Falls Mill historic multifamily re-development project in Putnam, CT. A sample set of units were modeled using the RESNET approved sampling protocol and REM/Rate modeling software to represent each unique unit type in the project. The energy models were recently updated to include the hydro-power generated on site and specifications set forth in the bid set dated July 11, 2017. Analysis shows that all of the modeled apartments are achieving a predicted ≤50 HERS Index (including renewable energy) and incorporate the following high-efficiency, high-performance energy measures:

- Low-flow plumbing fixtures & >R-3 DHW pipe insulation
- Unitary heat pump water heaters (3.24 UEF)
- Ductless VRV heating/cooling system (COP 3.5 - 4.6) with integrated high-efficiency ERVs to provide balanced whole-house mechanical ventilation (ASHRAE 62.2-2013)
- Hydro-power plant generating renewable energy (900 kW total)
- Fiberglass batt above grade wall insulation (R-21)
- Tapered rigid board roof insulation (R-30)
- All windows to be replaced with argon-filled aluminum windows
- All in-unit appliances will be ENERGY STAR certified
- 100% LED lighting
- Units will be required to meet strict compartmentalization air leakage testing of < 0.25 CFM/ft² of enclosure; to be verified by licensed HERS rater at project completion

Thank you,

Carmel Pratt
Sustainability Consultant
61 Washington St. Suite 2
Norwalk, CT 06854
203.857.0200 x302
cpratt@swinter.com

Annual Generation (kWh)	
Value of Utility Offset (per kWh)	
ZREC Contract	
Total per kWh Value (Yrs 1-13)	
Total per kWh Value (Yrs 14-25)	
Total Hydro Value	
Original C-PACE Principal	
Accrued Interest (estimated)	
New Money	
Total C-PACE Loan	
Interest Rate (p.a.)	
Term (yrs)	
Total Payments Due	
SIR	

Board of Directors

Agenda Item #6b

Investment Business Recommendations

Canton Hydro Project

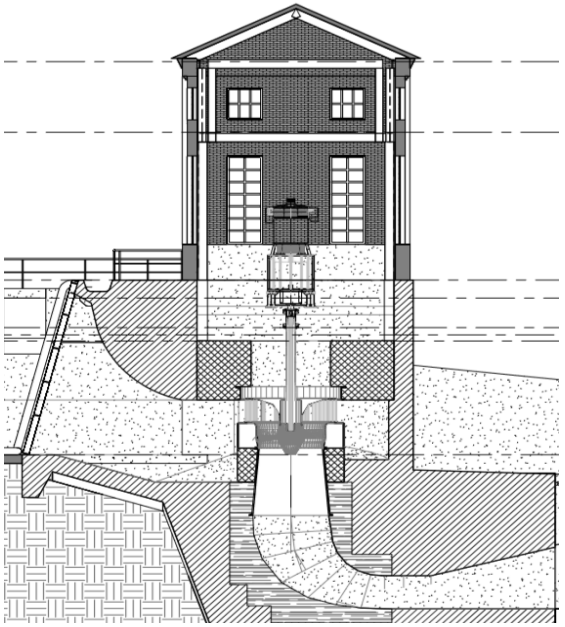
Canton Hydro
Background & Project Description

Background

- Upper Collinsville Dam originally built for hydropower, ceased generation in 1966
- With **Connecticut Clean Energy Fund** support, **Town of Canton** (Canton) commissioned pre-feasibility hydro study and drafted a Federal bill to allow Canton to take over lapsed FERC license
- Canton partnered with **Canton Hydro LLC** (Developer) through competitive bid process

Project Description

- **1 MW** run-of-river hydro, employing **Kaplan** turbine with an expected average annual production of 4.3 GWh
- Construction of Denil Fishway passage and low level fish guidance barrier
- 30-year **Site Lease** and **Virtual Net Metering Credit Purchase Agreement** (“VNMCPA”) with **DEEP**



Cross section of proposed installation

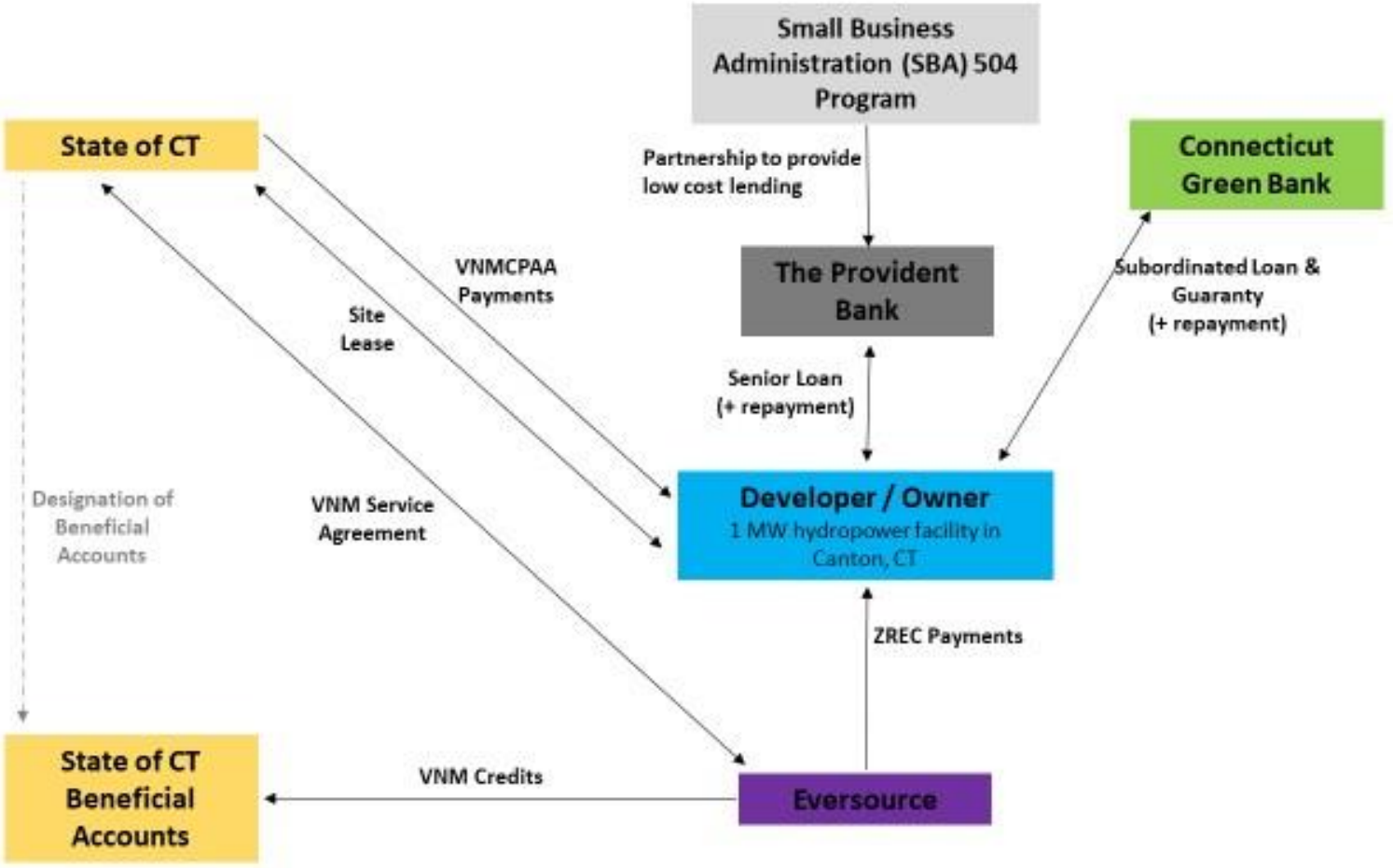
Canton Hydro
Financing Arrangements

- Project costs: ~$6.4 million
- Capital stack:

REDACTED

- <u>Green Bank proposed financing</u>:
  - Not to exceed (NTE) **$1.2 million subordinate loan:**
  - 15-year, [redacted] interest rate;
  - Mortgage style amortization; and,
  - Security position in project assets behind the Senior Loans.
- NTE **$500,000** unfunded balance sheet **guaranty** to senior lender in the event of low flow in early years**:**
  - Called upon if there is not enough cash flow or reserves;
  - [redacted] per annum fee for guaranty; and,
  - Capitalized into Green Bank subordinate loan if ever called upon.

Canton Hydro
Capital Flow Diagram



Board of Directors

Agenda Item #6c

Investment Business Recommendations

Green Bank Solar PPA with IPC

Green Bank Solar PPA with IPC

Program Updates

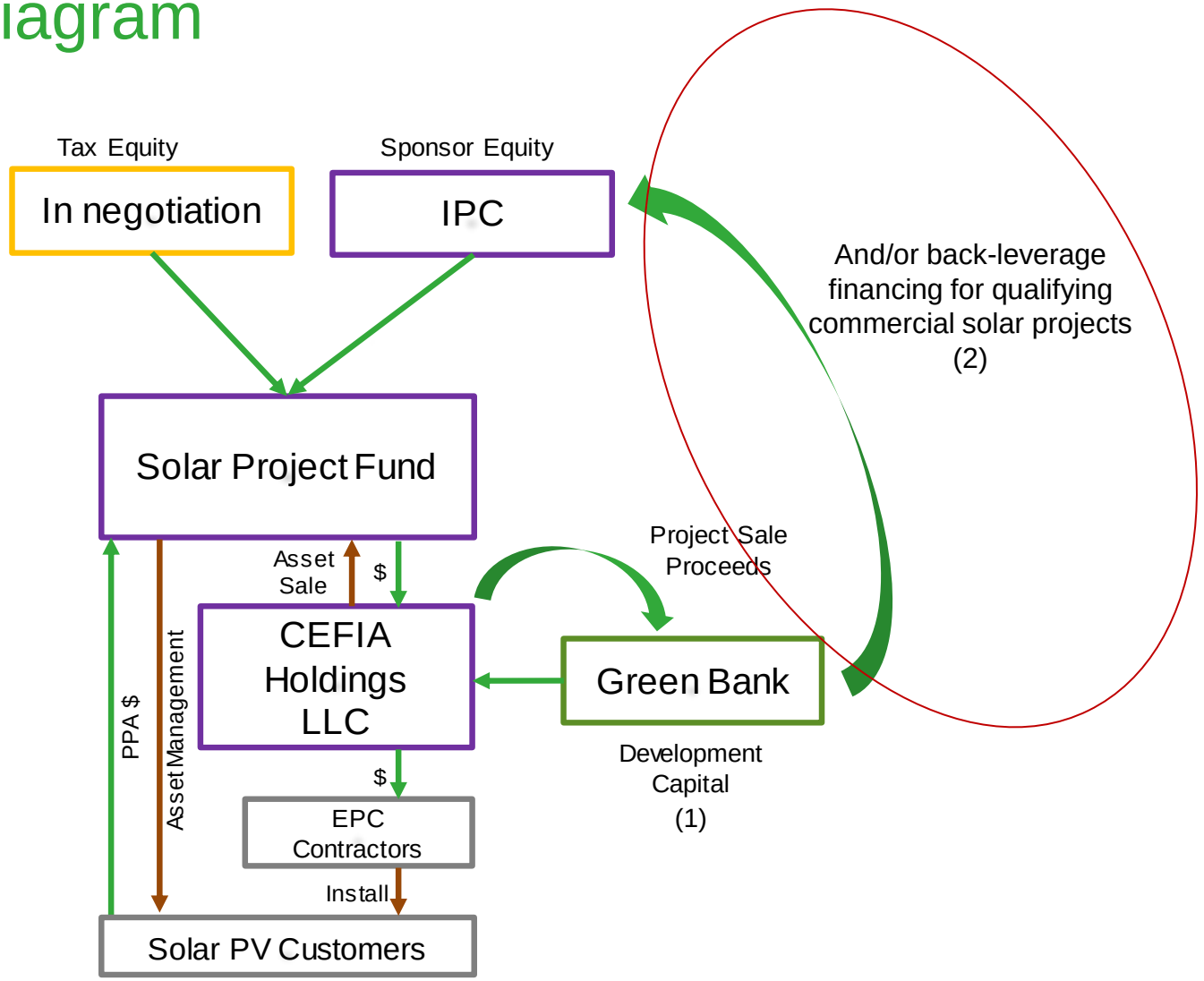
- Current Status: SL2 & SL3 closed;
  - ❑ Onyx partnership to be extended for another year

	# of Projects	Total Capacity (MW)
SL2	53	9.70
SL3	31	5.75
Onyx	14	9.41
Currently in development	19	3.33

- Future Strategy: Flexibility in continuing to deploy capital to commercial scale PPA projects via
  - ❑ Development capital
  - ❑ Construction financing
  - ❑ Providing financing to 3rd-party owners of projects that might otherwise struggle to get done (due to credit or size or complexity challenges)

Green Bank Solar PPA with IPC

Structure Diagram



Green Bank Solar PPA with IPC

Recommended Approach

- Development Capital/Construction Financing (reaffirming existing authority) – Continuation of Green Bank's ability to deploy short-term capital via CEFIA Holdings vehicle for development/construction purposes (e.g. Onyx sourcing), as previously authorized by BOD at its August 2018 meeting

- Term Financing (new authority) – Green Bank would be authorized to provide term capital solutions for Connecticut projects developed by 3rd-party owners (e.g. IPC, Sunwealth) with rates and terms commensurate with risk (in line with C-PACE program)

Green Bank Solar PPA with IPC

Term Financing Strategy

- Take Advantage of IPC's capabilities – IPC spun out to provide just such a home for "retained" projects, with greater flexibility in terms of tax equity sourcing, operational efficiency, and asset management

- Drive and Accelerate New Market Entry to Better Serve Unconventional Credits – Green Bank historical success in opening up this market has encouraged a limited number of new players to seek to serve this part of the market in Connecticut; with long-term Green Bank capital support, these players can offer PPAs that save customers meaningful dollars on their energy bills while nonetheless hitting required return thresholds

Board of Directors

Agenda Item #6d

Investment Business Recommendations

FuelCell Energy – CMEEC and Groton Naval Sub Base Project

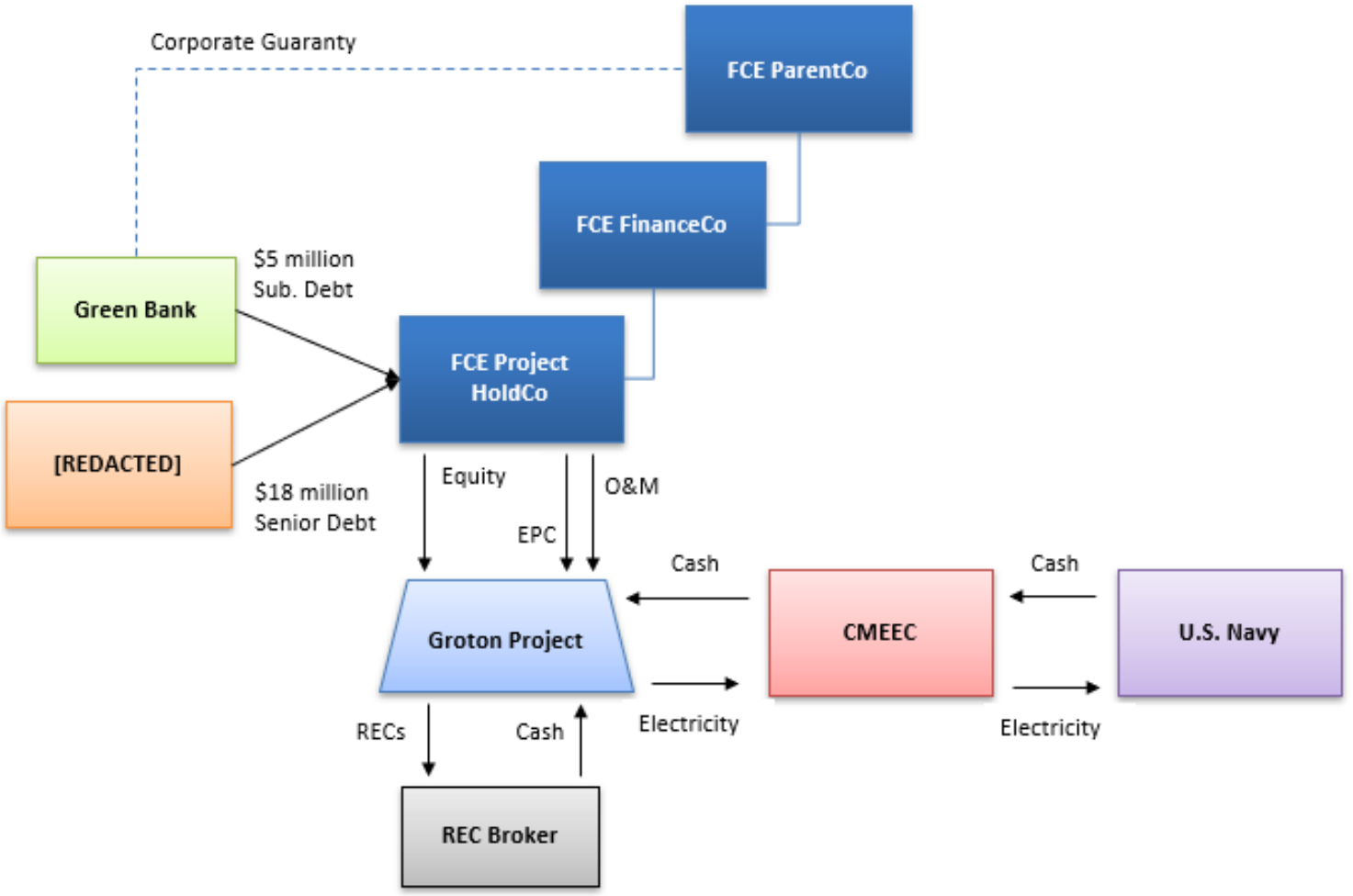
FCE Groton Project

Project Summary

- **Project**: 7.4 MW FuelCell Energy (“FCE”) plant located on U.S. Navy Submarine Base in Groton, CT;
- **Project Cashflows**: 20-year PPA with CMEEC and Class I RECs;
- **Green Bank Participation**: (i.) Advisor on raising 3rd party capital, and (ii.) Term Lender;
- **Green Bank Exposure**: $5 million secured Term Loan, subordinated to $18 million of senior debt, fully amortizing across 15-year Term;
- **Private Capital Leverage**: $22.4 Construction Debt and $18 million Senior Term Debt relative to $5 million Green Bank debt (~8x leverage ratio);
- **Green Bank Strategic Selection**: Project meets criteria of all 5 Strategic Selection categories: Special Capabilities, Uniqueness, Strategic Importance, Urgency and Timeliness, and Multiphase Project.

FCE Groton Project

Structure Diagram



FCE Groton Project

Risk Mitigation

- Corporate guaranty for minimum required REC pricing;
- Subordinated lien on, and security interest in, all Project assets, and collateral assignment of all Project cashflows;
- 15-year Term relative to a 20-year PPA (5 years of back-end cashflow to help cover shortfalls);
- Significant equity cushion;
- Advance at COD, after all Conditions Precedent met (reducing technology and performance risks);
- 20-year O&M agreement with FCE to maintain Project, with required performance levels dictated in the PPA;
- Investment-grade Off-taker (CMEEC);
- No natural gas/fuel risk;
- To-be designed and implemented Cash Sweep provisions.

Board of Directors

Agenda Item #6e

Investment Business Recommendations

C-PACE Transaction – Norwalk

310 Wilson Avenue, Norwalk Ratepayer Payback

- **$1,024,636** for 133.8 kW, 56 kW & 122.9 kW roof mount solar PV systems and roof replacement
- Projected savings are **17,462 MMBtu** versus **$1,024,636** of ratepayer funds at risk.

REDACTED

- Ratepayer funds will be paid back in one of the following ways
  - (a) through a take-out by a private capital provider at the end of construction (project completion);
  - (b) subsequently, when the loan is sold down to a private capital provider; or
  - (c) through receipt of funds from the City of Norwalk as it collects the C-PACE benefit assessment from the property owner.

310 Wilson Avenue, Norwalk Terms and Conditions

- **$1,024,636** construction loan at 5% and term loan set at a fixed 6.125% over the 20-year term
- **$1,024,636** loan against the property
  - Property valued at **REDACTED**
  - Loan-to-value ratio equals **REDACTED**; Lien-to-value ratio equals **REDACTED**
- DSCR > **REDACTED**

310 Wilson Avenue, Norwalk
The Five W's

- **What?** Receive approval for a $1,024,636 construction and (potentially) term loan under the C-PACE program to 300 Wilson Avenue, LLC to finance the construction of specified energy upgrade
- **When?** Project to commence 2018
- **Why?** Allow Green Bank to finance this C-PACE transaction, continue to build momentum in the market, and potentially provide term financing for this project until Green Bank sells it along with its other loan positions in C-PACE transactions.
- **Who?** 300 Wilson Avenue, LLC, the property owner of 310 Wilson Ave, Norwalk CT
- **Where?** 310 Wilson Ave, Norwalk CT

310 Wilson Avenue, Norwalk
Project Tear Sheet

REDACTED

310 Wilson Avenue, Norwalk
Key Financial Metrics

CONNECTICUT GREEN BANK

REDACTED

Board of Directors

Agenda Item #6f

Investment Business Recommendations

Small Business Energy Advantage

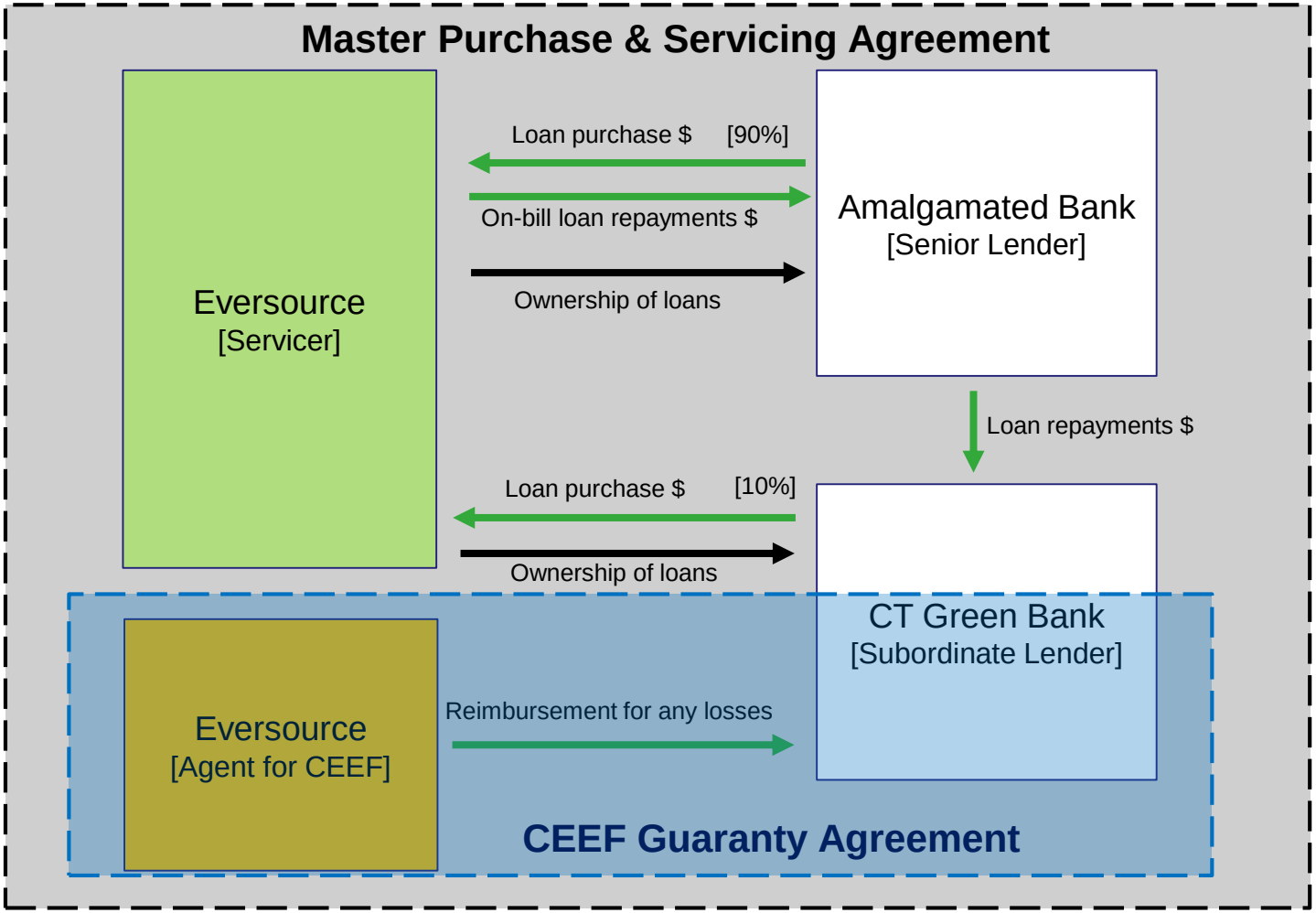
SBEA Loan Purchase Facility

Investment Summary

- **Opportunity**: Purchase Eversource SBEA Loans using facility funded with Amalgamated Bank and Green Bank capital
- **Terms & Rate**: 3-year commitment to purchase Eversource SBEA "Qualifying Loans" **REDACTED** Aim to close by end of 2018.
- **Green Bank Participation**: (i.) Partner in issuing RFP and selecting winning third-party capital provider and (ii) Invest up to $5 million of subordinated capital into facility (10% of $55 million total)
- **Green Bank Exposure**: Green Bank investment will be protected against losses by guaranty from Eversource (as an agent of CEEF)
- **Private Capital Leverage**: $50 million in senior debt from Amalgamated Bank
- **Green Bank Strategic Selection**:
  - Addresses EEB and Green Bank Joint Committee shared goal "to identify and engage alternative capital sources to lower the cost of and increase opportunities for project financing."
  - Reduces the cost to CEEF of SBEA financing for Eversource customers and makes capital currently deployed in SBEA loans available for CEEF programs to the benefit of ratepayers
  - Establishes a valuable and collaborative relationship between Green Bank and Eversource that will be template for delivering similar solution for United Illuminating
  - Amalgamated Bank is America's largest B Corporation bank with $4 billion in assets

SBEA Loan Purchase Facility

Structure Diagram



Board of Directors

Agenda Item #7
Incentive Business
SHREC Update

SHREC Monetization
Securitization milestones

- Independent Engineer's reports: close to completion
  - 3rd party verification of production estimates
- Rating Agency (Kroll) review underway
  - Kroll furnished with information on the Green Bank, RSIP, data on the 14,000+ systems in Tranches 1 and 2
  - Feedback pending on structure to achieve investment grade rating
- Agreed Upon Procedures provider (KPMG) appointed
  - Sample selection: 125 systems across two Tranches; review of third party supporting documentation

SHREC Monetization

Securitization milestones (continued)

- Positive discussions held with investors
  - Attended flagship industry conference, ABS East
  - RBC arranged for investor discussions with insurance companies, asset managers and a religious-based investment fund
- Social Impact – Green Bond Verification review underway
  - CAR-Kestrel joint team
  - Social impact statement drafted
  - Preparatory Green Bond verification work underway
- Mid-December execution and placement

Board of Directors

Agenda Item #8

Executive Session

Personnel Related Matters

Board of Directors

Agenda Item #9

Adjourn

CONNECTICUT GREEN BANK
Board of Directors
Draft Minutes
Tuesday, August 21, 2018

1. Call to Order

Bryan Garcia called the meeting to order at 1:07 p.m.

Board members participating: Matt Ranelli (by phone), Bettina Bronisz (by phone), John Harrity (by phone), Betsy Crum (by phone), Catherine Smith (by phone), Eric Brown (by phone), and Rob Klee (by phone)

Members Absent: Gina McCarthy, Kevin Walsh, and Tom Flynn

Staff and Public Attending: Bryan Garcia, Brian Farnen (by phone), Cheryl Samuels, George Bellas, Eric Shrago (by phone), Mike Yu (by phone), Bert Hunter (by phone), Nick Zuba (by phone), and Ben Healey of Inclusive Prosperity Capital (by phone)

2. Public Comments

There were no public comments.

3. Consent Agenda

Upon a motion made by Matt Ranelli and seconded by Rob Klee the Consent Agenda was approved.

Resolution #1

Motion to approve the meeting minutes of the Board of Directors for July 27, 2018.

4. Investment Business – Clean Energy Finance

a. Green Bank Solar PPA

Bert Hunter discussed the Green Bank Solar PPA. He stated that they are requesting approval from the Board for continued development capital up to $10 million for transactions in Connecticut while they continue to outsource services to the non-profit. He stated that the Board had previously approved CEFIA Holdings taking the development role for Solar Lease 2 and 3. He reported that Solar Lease 2 is fully closed. He stated that both Solar Lease 2 and 3 are Green Bank-managed funds. He noted that those arrangements, plus the Green Bank's

partnership with Onyx Renewable Partners, have resulted in the commercial solar business being developed in Connecticut, with a total of about 117 projects. He stated that it is among the most successful such programs in the nation. He stated that it is one of the few programs in the country that uses Commercial PACE for non-investment grade property. He stated that the Green Bank has pioneered this. He said that they'd done approximately 6 MW using C-PACE as a security mechanism. He noted that the funds from CEFIA Holdings get replenished by advances from Tax Equity and/or debt and is in turn returned to the Green Bank – or used for additional system development and that the cycle repeats. He stated that there would be a future fund that is being put together by IPC that will be the buyer / long-term manager of the projects. He said that when it comes time to sell the projects, the Green Bank will come back to the Board for approval, which could include an ability to participate in a newly formed fund. He stated that the bridge financing strategy is not long term. He said that they are looking for approval of continued bridge financing. He noted that the Board has already approved this type of development capital for the current SL3 Fund and the Onyx Fund. He stated that those are wrapping up and that they need a provision so that there is no stall in the development of commercial scale projects in the Connecticut marketplace.

Matt Ranelli questioned why this was not seen in advance and why they need to bridge a gap in funding as opposed to having already had partners set up. Bert Hunter stated that transitioning to IPC has made it difficult to plan, while the entity is being formed. He said that IPC has yet to form its new commercial solar fund. He stated that they have been talking to some capital providers. Ben Healey noted that the plan has been to develop term financing solutions. He reported that CEFIA Holdings is not changing, that it is indeed continuing the role they have played, with no deviation from the current business. Catherine Smith questioned if this will impact other financings in the works or borrowings. Bert Hunter stated that it will not, that as of May 31, CEFIA Holdings had already used about $7 million of the $10 million in capacity being brought forward for approval and that it is well within the budget capacity. Catherine Smith questioned if the $10 million is where they see it for the time being. Bert Hunter stated, yes, and moving over to IPC once they can develop facilities to manage the projects, the Green Bank capital requirement may be less. Bettina Bronisz questioned if the money is going from the Green Bank to CEFIA and then ultimately finding its way back to IPC. Bert Hunter stated no, as those projects are completed and sold to either SL3 or Onyx or a future fund, the money comes back to Holdings and is then repaid to the Green Bank. He stated that there is no financing going to IPC as a result of this activity. Bettina Bronisz questioned if Green Bank monies will touch IPC. Bert Hunter said, no. Eric Brown questioned if Onyx was exclusively for commercial-scale projects. Bert Hunter stated, yes.

Upon a motion made by Matt Ranelli, and seconded by John Harrity, with an abstention from Bettina Bronisz, the Resolution passed.

Resolution #2

WHEREAS, the Connecticut Green Bank ("Green Bank") has enjoyed a long and successful history of commercial-scale solar project development and financing;

WHEREAS, CEFIA Holdings LLC ("Holdings") is the Green Bank's solar project development vehicle, and the Green Bank's existing agreements for the sale and/or term financing of commercial-scale projects developed by Holdings are shortly to expire; and

WHEREAS, the Green Bank has entered into an agreement with Inclusive Prosperity Capital, Inc. ("IPC") to continue to provide financing solutions for commercial-scale solar projects on behalf of the Green Bank, which solutions are currently under development.

NOW, therefore be it:

RESOLVED, that the Green Bank Board of Directors ("Board") authorizes Holdings to continue to develop commercial-scale solar projects using a revolving capital facility not to exceed $10 million at any given time; and

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

b. C-PACE Transaction – Bridgeport

Nick Zuba discussed the Bridgeport C-PACE transaction. He stated that they are coming back to the Board because the original contractor on this project only met half of the obligation. He stated that the request is to complete the project through ECO Solar, taking on $783,000 loan. He stated that the Loan to Value is elevated due to DECD grant that is also be encumbered against property because of a job creation requirement. He stated that as long as their DECD job creation obligation is met, that part of the mortgage obligation over time will be forgiven. He noted that SIR remains above 1. Matt Ranelli questioned if the extra $150,000 was due to changing contractors. Nick Zuba stated that the project has been downgraded, but that there will now be a truck port system as opposed to a carport system. He stated that the extra monies are attributed to the system redesign and new materials that would be needed for that project portion.

Matt Ranelli voiced his concerns about not wanting to pay for any damages from the previous contractor. Nick Zuba stated that they are not paying for any damage. He said that there are lost savings resulting from the contractors' failure to perform. Matt Ranelli questioned if there has been any effort to recover some

of the costs from the contractor. Nick Zuba stated that he is not aware of the Green Bank's exit strategy in this case. Rob Klee questioned if they had considered what their legal course of action was against the contractor. Bert Hunter stated that they are thinking of what remedies they may have against the contractor. He noted that the contractor is no longer eligible for any programs under the Green Bank.

Upon a motion made by Rob Klee and seconded by Eric Brown the Resolution passed.

Resolution #3

WHEREAS, pursuant to Section 157 of Public Act No. 12-2 of the June 12, 2012 Special Session of the Connecticut General Assembly and as amended (the "Act"), the Connecticut Green Bank (Green Bank) is directed to, amongst other things, establish a commercial sustainable energy program for Connecticut, known as Commercial Property Assessed Clean Energy ("C-PACE");

WHEREAS, the Green Bank Board of Directors (the "Board") has approved a $40,000,000 C-PACE construction and term loan program; and

WHEREAS, the Green Bank seeks to provide a $783,763 construction and (potentially) term loan under the C-PACE program to Wade Properties, LLC, the building owner of 1316 Barnum Avenue, Bridgeport, Connecticut (the "Loan"), to finance the construction of specified clean energy measures in line with the State's Comprehensive Energy Strategy and the Green Bank's Strategic Plan.

NOW, therefore be it:

RESOLVED, that the Board of Directors of the Connecticut Green Bank is authorized to execute and deliver the Loan in an amount not to be greater than one hundred ten percent of the Loan amount with terms and conditions consistent with the memorandum submitted to the Board dated August 17, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 120 days from the date of authorization by the Board of Directors;

RESOLVED, that before executing the Loan, the President of the Green Bank and any other duly authorized officer of the Green Bank shall receive confirmation that the C-PACE transaction meets the statutory obligations of the Act, including but not limited to the savings to investment ratio and lender consent requirements; and

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

5. Adjourn

Upon a motion made by Rob Klee, and seconded by Catherine Smith, the meeting was adjourned at 1:40 p.m.

Respectfully Submitted,

_____

Catherine Smith, Chairperson

Board of Directors of the Connecticut Green Bank Special Meeting Minutes

Tuesday, September 18, 2018
2:00 - 2:30 p.m.

A special meeting of the Board of Directors of the **Connecticut Green Bank (the "Green Bank")** was held on September 18, 2018 at the office of the Connecticut Green Bank, 845 Brook Street, Rocky Hill, CT, in the Colonel Albert Pope Board Room.

Board members participating: Bettina Bronisz (by phone), Eric Brown (by phone), Betsy Crum (by phone), John Harrity (by phone), Rob Klee (by phone), Matt Ranelli (by phone), Kevin Walsh (by phone), and Catherine Smith (by phone).

Board Members Absent: Thomas M. Flynn, Gina McCarthy

Staff Attending: Emily Basham, Mackey Dykes, Brian Farnen, Isabelle Hazlewood, Selya Price, Eric Shrago, Nick Zuba, and Bert Hunter.

Others (from IPC): Joe Buonannata, Ben Healey, and Chris Magalhaes

1. Call to order

Catherine Smith called the meeting to order at 2:10pm

2. Public Comments

None – only Board Members and staff in attendance

3. Investment Business Previews and Recommendations

a. Preview Investments
   i. IPC commercial solar/REA/Sunwealth

- IPC will sponsor the next fund
- The "fund" will likely be on a "project-by-basis" basis with tax equity through REA
- CGB will continue funding development through CEFIA Holdings LLC
- Alternative funding still an option with Onyx

ii. Fuel Cell Energy – Construction Finance Facility for CMEEC/Sub-Base Project

In response to Director Walsh's question as to the project seeming to be one which would not require Green Bank support, Mr. Hunter responded that there is still some reluctance to fund these facilities without Green Bank support, but that we are seeking to minimize our capital support role.

- Two projects presented; Canton (Hydro) and Groton Sub Base (Energy)
  - Bert Hunter explained that the Canton Hydro project is continuing along the development path
  - Staff confirmed that CGB financing will not be provided until all permits are approved

  - Bert Hunter explained the efforts by Green Bank to raise a construction finance facility in support of a fuel cell project being constructed by FuelCell Energy ("FCE" of Danbury) for CMEEC to supply electric energy to the Naval Sub Base at Groton. He explained that several lenders are interested in proposing a facility for FCE and that proposals are expected soon. He explained that CGB would propose to fund up to $5 million in subordinated debt for the construction to facilitate about $20 to $25 million of funding from senior lenders to finance the project.
  - CGB will earn a fee for this work
  - A proposal will be presented at the next Board meeting in October

- Discussion regarding these projects continued with the following comments:
  -
  - Per Kevin Walsh; Ensure equity not paid out before debt is repaid
  - Another director questioned if CGB is just acting like a bank and whether our available funds should be used for other projects that cannot receive private financing?
  - Hunter noted that CGB's participation would enable potentially lower costs
  - Also bringing proposals to commercial banks for lending options
  - Kevin Walsh pointed out that commercial banks may be eager to look at providing funding – Hunter said the proposals that are received may not require Green Bank funding (to be determined)
  - Another director stated that a commercial bank may be able to take on ***more*** of the actual lending for this project
  - Hunter noted that bids are in the process of being formed and we will know more once the bids are received

Brian Farnen recapped the Investment Business Previews and Recommendations

3. Investment Business Recommendations

b. Recommended Investment
   i. PosiGen PBI "Interim Financing Facility" with IPC

- Ben Healey address financing for PosiGen:
  - PosiGen collateral from CGB PBI payments to PosiGen

- Currently $9MM loaned by Green Bank to PosiGen
- Bettina Bronisz asked how long the CGB temporary funding will be required prior to IPC receiving its initial capital allocation; Ben Healey stated potentially through year-end
- Catherine Smith asked what is holding up IPC funding?
- Brian Farnen stated that the CT Attorney General's office is looking for more documentation regarding the non-profit
- CGB Legal is working with IPC on getting them all the documentation necessary so funding can go forward
- Rob thanked CGB for their assistance to seeing funding go through for IPC

Resolution #1

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

WHEREAS, the Green Bank Board of Directors ("Board) previously authorized the Green Bank's participation in a credit facility (the "BL Facility") encompassing all of PosiGen's solar PV system and energy efficiency leases in the United States as part of the company's strategic growth plan, in an amount not to exceed $15 million;

WHEREAS, that prior authorization for the BL Facility excluded financing against Performance Based Incentive ("PBI") payments due to PosiGen under the Residential Solar Investment Program ("RSIP"), as such financing was expected to be provided by Inclusive Prosperity Capital, Inc. ("IPC"); and

WHEREAS, IPC is unable to provide such financing as needed by PosiGen upon the closing of the BL Facility, but is expected to be in a position to provide such financing as IPC secures its initial funding.

NOW, therefore be it:

RESOLVED, that the Green Bank Board authorizes the extension of credit under a separate PBI-only facility to PosiGen in addition to the BL Facility, provided that Green Bank capital outstanding between such PBI-only facility and the BL Facility does not exceed the previously authorized $15 million total;

RESOLVED, that once IPC has secured its initial funding and is able to extend credit itself, the Green Bank will sell down its position in the PBI-only facility to IPC on the same terms as will exist between Green Bank and PosiGen, but the Green Bank shall be permitted to co-lend with IPC to PosiGen under the PBI-only facility until IPC can satisfy 100% of the capital required under the PBI-only facility, provided that Green Bank capital outstanding between such PBI-only facility and the BL Facility does not exceed the previously authorized $15 million total; and

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

Motion to Approve PosiGen PBI "Interim Financing Facility" with IPC
made by Betsy Crum
2nd by John Harrity
Unanimously Approved

ii. C-PACE Initial Investment from Hannon Armstrong

- C-PACE Program Funding:
  - CGB stated some C-PACE projects owned by Hannon Armstrong (Hannon) would be paid off to Hannon by CGB taking transactions back for limited credit risk with this move
  - Hannon requested CGB to begin purchase in October 2018 with a smaller combined tranche of a $3.7Mil purchase with the balance being purchased after the completion of the securitization
  - Kevin voiced concern about capital constraints and why would CGB take this on instead of a bank or other financing?
  - Hunter responded that the repurchase is part of the Green Bank sustainability plan approved by the Board in December 2017 to invest in earning assets that could provide income for the Green Bank
  - Eric Shrago noted this is in line with the Green Bank's Sustainability plan
  - Hunter confirmed with Bellas that CGB has adequate cash-on-hand to address these transactions and not take from new or ongoing projects
  - Kevin Walsh asked if portfolio of these project loans could be placed in the market if they are good investments?
  - Additional comment that it felt good to take in interest income [from these investments]
  - Matt Ranelli asked if CGB is over-securitizing its incentives? Plan was to get more income to pay down other bills … that maybe we might not have to borrow so much
  - Hunter explained that the securitization is returning capital that the investment side of the Green Bank loaned to the incentive side … and was now able to recover that loan (via the securitization) and invest some of the proceeds in earning assets according to the sustainability plan approved by the Board in December 2017
  - According to Hunter, he and Bryan Garcia spoke with George Bellas about the ability of the Green Bank to manage the initial purchase of the Hannon assets ($3.7 million) and Mr. Bellas noted that CGB is in a good place with capital/cash for the transaction.
  - Board members discussed ensuring a balance here and not having too much capital – whereupon a member stated "You can never have too much capital."

Resolution #2

WHEREAS, the Connecticut Green Bank ("Green Bank") has an existing partnership with Hannon Armstrong ("Hannon") pursuant to the C-PACE Program, Master Assignment and Servicing Agreement, dated December 17, 2015 (the "Program Agreement") approved by the Green Bank Board of Directors (the "Board") at a meeting held on October 16, 2015;

WHEREAS, the Green Bank and Hannon have elected not to extend the Program Agreement beyond its December 17, 2018 termination date;

WHEREAS, Green Bank and Hannon have agreed to terms pursuant to which Green Bank would repurchase and acquire 100% ownership in the Benefit Assessment Liens originated pursuant to the Program Agreement as set forth in a memorandum to the Board dated September 11, 2018;

NOW, therefore be it:

RESOLVED, that the Board authorizes Green Bank to repurchase and acquire 100% ownership in the Benefit Assessment Liens originated pursuant to the Program Agreement, materially consistent with the terms set forth in the Board Memo;

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

Motion to Approve C-PACE Initial Investment from Hannon Armstrong
made by Betsy Crum
2nd by John Harrity
Unanimously Approved

4. Adjourn

Catherine and Brian thanked all for their participation in today's meeting

Upon a motion made by Rob Klee and seconded by Catherine Smith, the meeting was adjourned at 2:40pm.

Respectfully submitted,

Catherine Smith, Chairperson

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

CONNECTICUT GREEN BANK

Memo

To: Board of Directors of the Connecticut Green Bank

From: Lucy Charpentier, Bryan Garcia, Dale Hedman, and Eric Shrago

CC: Mackey Dykes, Brian Farnen, and Bert Hunter

Date: October 26, 2018

Re: Infrastructure Sector Programs – Program Performance towards Targets for FY 2018 - Restated

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Overview

Public Act 11-80, *An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future*, requires that the Connecticut Green Bank (Green Bank) develop and implement several programs to support the deployment of solar photovoltaic (PV), combined heat and power (CHP), and anaerobic digester (AD) technologies. Alongside this act, through the Comprehensive Energy Strategy (CES) released by the Department of Energy and Environmental Protection (DEEP), there is the goal of delivering cleaner, cheaper and more reliable sources of energy through the deployment of in-state renewable energy sources, including the need for more microgrids. Due to the Connecticut General Assembly's reappropriation of monies from the Clean Energy Fund and RGGI to the General Fund, the Green Bank has had to scale back its programs including the termination of the CHP and AD pilots.

For a description of the programs and the TAM and SAM, please see the Comprehensive Plan for Fiscal Years 2017 through 2019.

Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of the Green Bank on July 21, 2017 and revised on January 26, 2018,[1] the following are the performance targets for FY 2018 and progress made to targets for the Infrastructure Sector Programs (see Table 1) as of June 30, 2018.

Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan for FY 2018

[1] For mid-year revisions to budget and targets, see "Q2 Progress to Targets" memo of January 19, 2018 on page 74

Key Metrics	Program Performance Original Targets (as of 07/01/17)	Program Performance Revised Targets (as of 01/26/18)	Program Progress[2]	% of Goal
Capital Deployed[3]	$136,300,000	$136,300,000	$181,734,456	133%
Investment at Risk[4]			$14,032,729	
Private Capital[5]			$167,701,727	
Deployed (MW)	37.0	37.0	48.8	132%
# of Loans/Projects	4,431	4,431	5,971	135%
Leverage Ratio			13.0	

In summary, for Infrastructure Sector Programs in FY 2018, there were 5,971 projects (achieving 135% of the goal) requiring $181.7 M of investment (achieving 133% of the goal) that led to the deployment of 48.8 MW of clean energy deployed (achieving 132% of the goal), that delivered a leverage ratio of about 13:1 for private to public funds invested.

Executive Summary for the Infrastructure Sector Programs

The following is a bulleted executive summary of the Infrastructure Sector Programs:

- RSIP milestones since program inception: Over 215 MW and more than 27,700 projects approved (more than 70% of 300 MW policy target), nearly 182 MW completed, over $115M invested in incentives at 7.5:1 leverage across all steps (7:1 for FY17)
- Sale of 39,221 SHRECs to EDCs in the first 3 quarters of FY18
- Creation of 31,807 residential and commercial Class I RECs (i.e., non-SHREC RECs) in the first 3 quarters of FY18
- DOE SolSmart technical advisor contract winner ($19K) to continue work with municipalities on solar PV permitting and zoning improvements to earn town's SolSmart certification for solar-friendliness and contribute to town's Sustainable CT goals
- DOE SunShot grant awarded last FY for $162K over three years - in FY18, developed an LMI deployment strategy to expand penetration into LMI single family market through PosiGen and Sunrun, as well as expand LMI deployment through community solar and the Green and Healthy Homes Initiative.
- Attracted SunRun into the RSIP LMI PBI incentive program with a discounted product offering for low-income homeowners
- Accepted into NREL Solar Energy Innovation Network which provides technical assistance and a $10,000 grant to explore how solar can improve grid reliability and resilience

[2] Includes only closed transactions, including projects in approved and completed statuses. An estimated 3 MW of approved projects will likely be cancelled in 1Q 2019 due to expired incentives for projects approved more than 365 days earlier and not yet completed. Using per project averages of 8 kW and $30,000, this would reduce the totals by 375 projects and $11.3M in capital.

[3] Capital Deployed is used to measure Investment actuals to targets and it includes fees related to financing costs and adjustments for Fair Market Value which are not included in the Gross System Cost. It represents: the Fair Market Value for Commercial/Residential Leases, the Amount Financed or Gross System Cost (whichever is greater) for CPACE, the Amount Financed for Residential financing products and the Gross System Cost for all other programs.

[4] Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by the Green Bank that are committed and invested in subsidies, credit enhancements, and loans and leases.

[5] Private Investment is based on the Gross System Cost and includes adjustments related to financing costs or Fair Market Value.

- Green Bank and United Illuminating partner on "Localized Targeting of DERs" demonstration project

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Infrastructure Sector Programs

The following are overviews of the Infrastructure Sector Programs being implemented and the contributions towards the achievement of the targets noted in the Comprehensive Plan.

- **Residential Solar Investment Program** – $14.0 million in subsidies[6] from the Green Bank has attracted $167.7 million of funds from other sources.

Table 2. RSIP Overview for FY 2018

Program Data	Submitted but not Closed	Closed[7]	Total
Projects	91	5,971	6,062
Installed Capacity (MW)	0.8	48.8	49.6
Lifetime Clean Energy Produced (MWh)	22,162	1,389,701	1,411,864
Annual Combined Energy Generated & Saved (MMBtu)	3,025	189,666	192,691
Subsidies ($'s)	$210,298	$14,032,729	$14,243,027
Credit Enhancement ($'s)	$0	$0	$0
Loans or Leases ($'s)	$0	$0	$0
Total Green Bank Investment ($'s)	$210,298	$14,032,729	$14,243,027
Private Capital ($'s)	$2,958,864	$167,701,727	$170,660,591
Direct Job Years	12	709	721
Indirect & Induced Job Years	16	927	943
Lifetime Tons of CO2 Emissions	11,941	753,480	765,421

The residential solar PV market in Connecticut has seen a dramatic improvement over the past decade (see Figure 1). Installed costs have decreased by nearly 60% from a high of $8.80/W in 2007 to $3.71/W in FY18. Incentives have decreased by over 90% from a high of $4.51/W in 2006 to $0.28/W today.

Since RSIP's inception in FY12, installed costs have decreased by nearly 30%, incentives have decreased by over 80%, and capacity additions increased over 1600% from 2.9 MW in FY12 to 48.8 MW in FY17.

RSIP capacity additions increased 25% from 38.9 MW in FY17 to 48.8 MW in FY18. FY18 deployment of 48.8 MW is 32% or 11.8 MW higher than the FY18 target of 37.0 MW.

[6] Note the distribution of EPBB and PBI and the 6-year payout of the PBI.

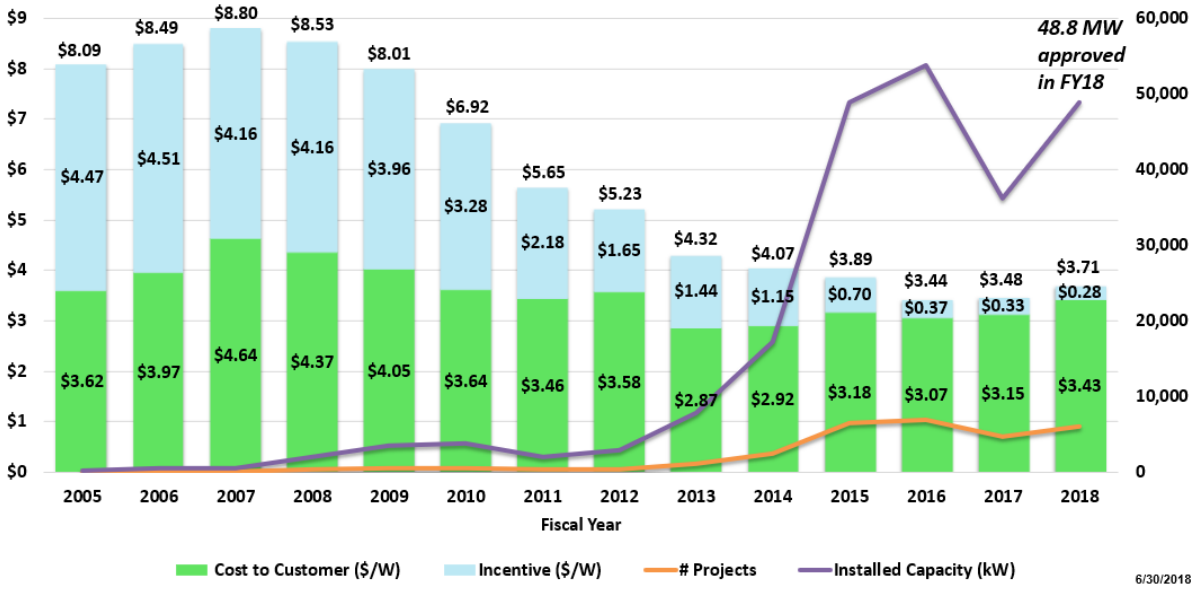
[7] Based on nearly 10-years of historical experience, 91% of projects approved result in project completions.

RSIP submission volume had dropped to a 34-month low in February 2017 at just below 2 MW, before beginning a climb to between 3-4 MW per month and averaging about 4 MW per month in FY18. May and June 2018 were high-volume months, with about 6 MW and 5.5 MW submitted respectively. Partial data for July 2018 suggests that volume may stabilize back closer to 4 MW as FY19 begins.

Also of note in FY18 was a reduction of the RSIP incentive to just over 8% of installed project cost, as well as an increase of about 6% in the average installed cost, from $3.48/W in FY17 to $3.71/W in FY18 (see later discussion on reasons for this cost increase).

The increase in RSIP deployment from FY17 to FY18 was due to the recovery of the residential solar PV market from the exit of SolarCity from RSIP in FY17 when their market share dropped to less than 1% as compared to market dominance at 56% market share in FY15 and 43% in FY16. The ramp up by other large national companies in FY17 and FY18 included Sunnova, Vivint Solar, PosiGen, Sunrun and SunPower Capital, as well as steady volume from local and regional installers. The large national players participating in the Connecticut market primarily deploy third-party owned (TPO) projects (though Vivint sells PPAs and homeowner owned projects). Local and regional installers primarily sold homeowner-owned projects and also partnered with TPOs to perform installation and/or sales.

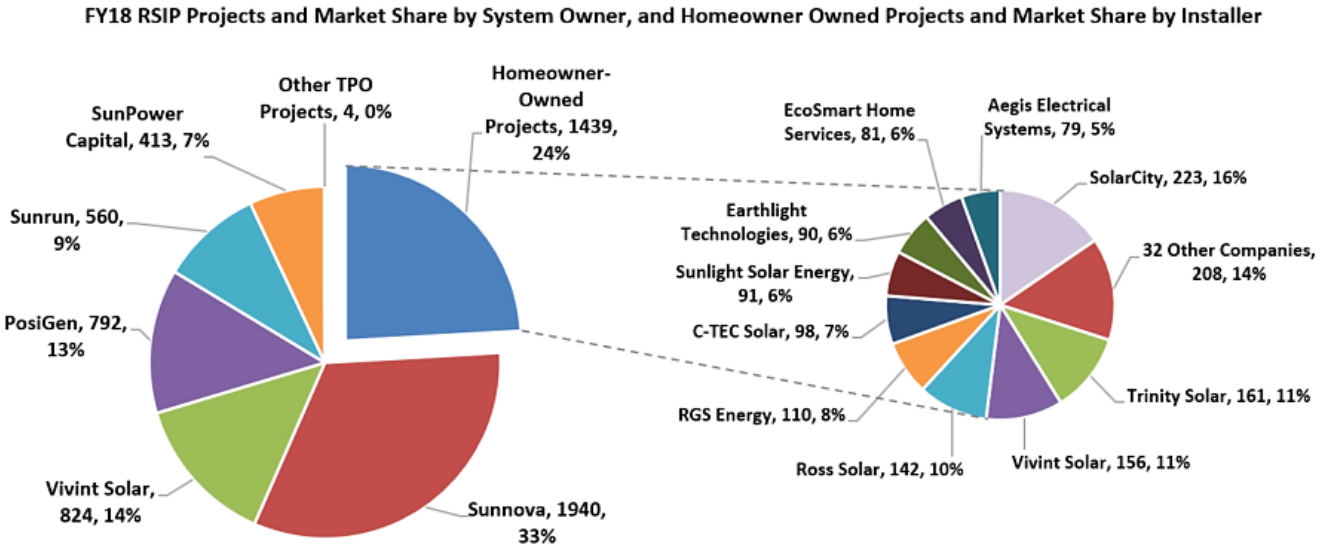
Figure 1. RSIP Installed Cost, Incentives and Installed Capacity by Fiscal Year



* Total System Cost per Watt figures include all reported installed costs without including those projects where financing costs for some third party ownership installers are included as part of the total system cost.

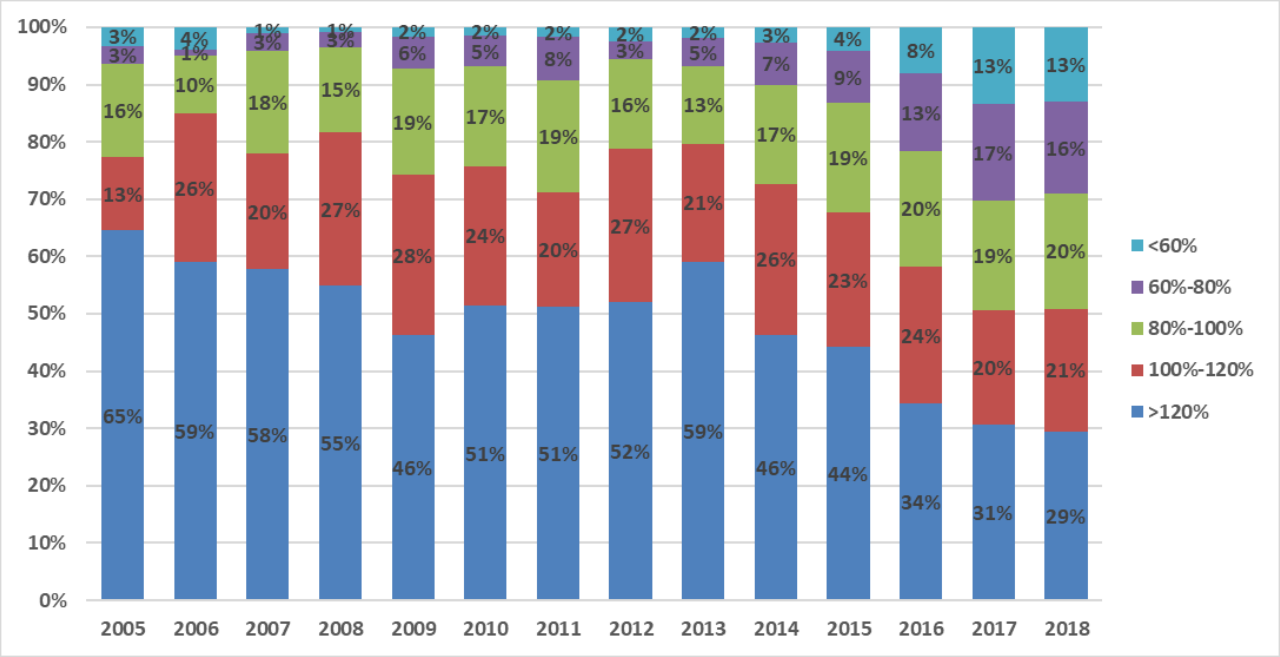
Third party owned (TPO) companies deployed 76% of RSIP projects in FY18 (as well as in FY17), led by Sunnova with 33% of RSIP market share. See Figure 2 for a breakdown of market share among TPO companies as well as homeowner-owned projects which made up 24% of RSIP volume in FY18. Figure 2 also presents RSIP installers with the top 10 highest market shares for homeowner owned projects. These 10 companies installed 86% of homeowner owned projects or 20% of total RSIP volume. SolarCity rejoined RSIP in FY18, selling loans and cash purchases instead of PPAs, but at a small volume compared to earlier fiscal years when they had dominated the market. SolarCity will likely reduce their participation in RSIP again in FY19 due to focus by parent company Tesla on their electric vehicle business going forward. Trinity Solar was RSIP's highest volume participant in FY18, having installed 2373 or 40% of RSIP projects in FY18 through a combination of homeowner owned projects and as a dealer partner for TPOs.

Figure 2. FY18 RSIP Projects and Market Share by System Owner and by Installer



PosiGen increased their volume by 17% from last fiscal year and continues to successfully penetrate the LMI market using the RSIP LMI PBI. Sunrun was approved this fiscal year as the second RSIP company to offer the LMI PBI. PosiGen, Sunrun and other TPOs are being encouraged to further tap into an LMI market which grew from having 22% of projects in 100% or lower income bands to 50% of RSIP projects in 100% or lower income bands in FY17 and FY18 – see Figure 3.

Figure 3. Percentage of Projects in Census Tract Area Median Income (AMI) Bands by FY



For a breakdown of RSIP project volume and investment by census tracts categorized by Area Median Income (AMI) bands and Distressed Communities as designated by DECD, see Tables 3 and 4, respectively. It should be noted that RSIP is not an income targeted program.

Table 3 presents market penetration of RSIP projects among census tract AMI bands as a percentage of owner occupied households in these same income bands. CT has reached parity with respect to reaching the same or better adoption of solar PV among 100% and lower AMI bands as with 100% and higher AMI band customers. For example, the Cumulative Project Units per 1000 households (HHs) is highest in the less than 60% AMI band at 38.5 projects per 1000 HHs, which equates to 3.85%. Similarly, market penetration is 34.8 projects per 1000 HHs or 3.48% in the 60-80% AMI band, 3.08% in the 80-100% band, 3.46% in the 100-120% AMI band, and 3.02% in the greater than 120% AMI band.

Table 3. RSIP Closed Activity in Metropolitan Statistical Area (MSA) Area Median Income (AMI) Bands

MSA AMI Band	Owner Occupied 1-4 Unit Households	% of Total HHs	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
<60%	60,769	7%	775	13%	2,339	8%	38.5	$59,252,197	7%
60%-80%	99,220	12%	958	16%	3,453	12%	34.8	$93,596,450	11%
80%-100%	165,331	19%	1,198	20%	5,091	18%	30.8	$155,284,061	18%
100%-120%	187,463	22%	1,280	21%	6,485	23%	34.6	$206,773,779	24%
>120%	345,311	40%	1,759	29%	10,421	37%	30.2	$352,324,968	41%
Unknown		0%	1	0%	1	0%	0.0	$41,014	0%
Total	858,094	100%	5,971	100%	27,790	100%	32.4	$867,272,469	100%

Table 4. RSIP Closed Activity in Distressed Communities

Distressed Designation	Total Households	% of Total HHs	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
Distressed	438,710	32%	2,239	37%	7,879	28%	18	$219,895,419	$501.23
Not Distressed	916,003	68%	3,732	63%	19,910	72%	22	$647,356,801	$706.72
Unknown		0%	0	0%	1	0%	0	$20,250	$0.00
Total	1,354,713	100%	5,971	100%	27,790	100%	21	$867,272,469	$640.19

An emerging market is residential solar plus energy storage. Over 90 RSIP projects approved in FY18 included energy storage, including the Tesla PowerWall and sonnenBatterie eco as the most prevalent equipment choices thus far.

As a requirement to receive the RSIP incentive, all residential solar PV customers must have an energy audit performed on their home, preferably the utility-administered Home Energy Solutions (HES) audit, but with other options if needed. In FY18, an estimated 93% of audits performed were either HES audits or DOE Home Energy Scores, even though HES budget constraints impacted HES volume. Non-HES audits performed by Building Performance Institute (BPI) certified auditors or Energy Star audits made up 6% of audits, while 1% of projects were exempt due to being new construction or having a health and safety exemption. These energy audits encourage adoption by customers of energy efficiency measures along with solar PV.

As noted earlier in this memo, installed costs increased about 6% on average from FY17 to FY18. Contractors indicated that the cost of doing business is going up, including increased customer

acquisition costs, privatizing of Solarize, increased financing costs, rising commodity prices due to trade tariffs, uncertainty in availability of equipment, increased competition, increased labor and insurance costs, and increased municipal permitting and interconnection costs including more frequent, costly utility requests for infrastructure (e.g., transformer) upgrades. Solar companies have been absorbing costs and reducing margins to keep prices stable, but these costs began adding up and necessitating price increases.

As previously established in FY17, all subsidies, administrative costs, and other expenses for the RSIP are to be cost recovered through the pricing and sale of SHRECs as specified in the MPA between the Green Bank and the electric distribution companies (EDC's). Tranche 1 includes 2015 and 2016 vintage RECs with a SHREC price of $50 per SHREC over the 15-year Tranche 2017 contract. In the first 3 quarters of FY 2018, 30,187 Tranche 1 SHRECs and 9,034 Tranche 2 SHREC were sold to the EDCs. SHRECs are sold to the EDCs quarterly. Tranche 2 (which began January 1, 2018) includes over 7200 projects that received Class 1 certification and REC aggregation approvals in FY18 (as compared to about 6,700 projects in Tranche 1). SHREC monetization and securitization efforts in FY18 were highly successful and will continue in FY19.

With 85 MW out of 215 MW left in the RSIP runway, the program is estimated to reach its 300 MW target around the end of calendar year 2019, though volume could increase in FY19 and shorten this timeframe due to end of program demand. Administration of RSIP in FY19 will focus on the expected transition from RSIP and retail net metering to future compensation structures as provided in PA 15-80[8], as well as ongoing SHREC processing and financial transactions.

For a breakdown of the use of Green Bank resources for Infrastructure Sector Programs (see Table 5).

Table 5. Distribution of Green Bank Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases for FY 2017[9]

Program	Subsidies		Credit Enhancements		Loans and Leases		Total
RSIP	$14,032,729	100%	$0	0%	$0	0%	$14,032,729
Total	$14,032,729	100%	$0	0%	$0	0%	$14,032,729

Of these programs, the following is a breakdown of their contributions made thus far towards the performance target and the human resources required to implement them (see Table 6):

Table 6. Program Progress Made in FY 2018[10]

Key Metrics	RSIP	Total Program Progress
Date of Program Approval	Feb 2012	
Date of Program Launch	Mar 2012	
Ratepayer Capital at Risk	$14,032,729[11]	$14,032,729
Private Capital	$167,701,727	$167,701,727
Deployed (MW)	48.8	48.8
# of Loans/Installations	5,971	5,971

[8] Public Act 18-50, An Act Concerning Connecticut's Energy Future: https://www.cga.ct.gov/2018/act/pa/pdf/2018PA-00050-R00SB-00009-PA.pdf

[9] Includes only closed transactions

[10] Includes only closed transactions

[11] Includes incentives over the 6 year course of term of the agreement

Key Metrics	RSIP	Total Program Progress
Lifetime Production (MWh)	1,389,701	1,389,701
Annual Combined Energy Generated & Saved (MMBtu)	189,666	189,666

"Top 5" Headlines

The following are the "Top 5" headlines for Infrastructure Sector Programs for FY 2018:

1. **Connecticut Controversial Energy Bill Boosts Renewables Ends Net-Metering**

   SolarReviews (May 11, 2018)

   The legislature in Connecticut passed SB 9, "An Act Concerning Connecticut's Energy Future," a controversial bill brought forward by Gov. Dannel Malloy (D). While the bill will expand the state's renewable energy portfolio to 40 percent by 2030, it will also end net metering, which the solar industry staunchly opposes. The legislation would actually replace the state's net-metering with a tariff-based reimbursement system. Those who are already net-metered in the state and those installed home solar before Dec. 31, 2018 will be net-metered through 2039.

2. **Clean Energy States Alliance Receives Solar Energy Innovation Network Award**

   (April 12, 2018)

   The Clean Energy States Alliance (CESA) was selected by the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) to participate in a collaborative research effort to explore new ways solar energy can improve the affordability, reliability, and resiliency of the nation's electric grid. CESA will work with agencies in five states and the District of Columbia to identify locations for distributed energy resources (DER) that provide benefits to the grid.

3. **Connecticut Kicks off Grid Modernization Effort**

   RTO Insider (April 5, 2018)

   Utility representatives and other stakeholders shared their views on evolving cost drivers, changing customer demand and new technologies at the Connecticut Public Utilities Regulatory Authority's first-ever technical conference on grid modernization.

4. **Solar is again the flashpoint in CT's new energy strategy**

   The CT Mirror (February 12, 2018)

   The Department of Energy and Environmental Protection has reworked the CES, as it is known, in key areas from a draft version released last summer. That version had sparked widespread objections – some 2,000 comments were filed – mainly involving solar policy.

5. **CT Solar Industry Wants a Clawback**

   CT Post (October 28, 2017)

   Connecticut's solar power industry wants a court to block the General Assembly from "confiscating" money earmarked for Green energy projects and instead using it to balance the state budget.

Lessons Learned

Based on the implementation of the Infrastructure Sector Programs thus far, the following are the key lessons learned:

- **There are many forces outside of Green Bank and RSIP control that impact the solar industry** – Continue to develop creative solutions to budget, policy and regulatory challenges that arise, and plan for potential future conditions (i.e., hope for the best but plan for the worst).
- **Talk to RSIP system owners and installers** - With respect to solar PV policy, regulation and administration of incentive programs and structures, it is always valuable and informative to have dialogue with and input from solar contractors since they have boots on the ground and are experienced with what works and what doesn't.
- **Continue to improve upon and leverage technology platforms and resources -** RSIP recognizes the need to continue leveraging resources that enable effective management of the fleet of over 27,000 projects, both in terms of incentive application and project completion paperwork processing, as well as monitoring of and resolution of issues pertaining to solar PV electricity production in order to monetize RECs and SHRECs. RSIP launched a new PowerClerk platform in August 2017 that provides better functionality, more flexibility and staff control, and increased efficiency. RSIP has engaged Locus Energy and SunSystem Technology (SST) to assist with monitoring of production data, trouble-shooting of system issues, and to provide new analytical tools to better understand factors impacting production. Lastly, the RSIP team continues to review, validate, and update data in the PowerClerk and Locus platforms to ensure data integrity that meets program needs.
- **Consumer protection continues to be an important long-term issue in the residential solar PV market** - The Green Bank has made progress working with state organizations on consumer protection, especially the State of CT Department of Consumer Protection (DCP). It will be valuable to leverage resources put together by the Clean Energy States Alliance (CESA) to take further steps toward protecting solar consumers, especially in preparation for when RSIP ends. This should include consideration of solutions that can be put in place in collaboration with DCP that can persist post-RSIP.
- **The focus of FY19 (and possibly FY20) will be on carrying RSIP through the home stretch and helping to provide a sustained orderly transition for the residential solar industry -** This context also includes the phasing out of the federal ITC and changes to state net metering policy with implementation of new compensation structures for solar. This will involve thoughtful attention to the economics and other aspects of what makes solar a viable choice for residential customers in CT and what can continue to make CT a viable state for solar companies to do business in.
- **Leverage experience, resources, and Sustainable CT platform to continue improving soft costs for solar PV -** The Green Bank team has done tremendous work over the past few years understanding and making an impact on addressing soft costs in the industry. Going forward, the team can leverage this knowledge, experience and resources continue guiding municipalities and supporting solar contractors in making improvements and taking next steps to further affect soft costs. For example, the RSIP team will continue its work in supporting implementation of Sustainable CT and the platform it provides to improve municipal solar permitting and other processes that affect solar soft costs. In addition to Sustainable CT which provides a broad umbrella for municipal improvements, resources, and recognition, the RSIP team has provided technical support to 5 towns through a Solar Foundation grant. These five towns worked to

streamline permitting and zoning processes for solar deployment in order to receive the SolSmart certification for solar friendliness.

- **Grid modernization and locational value of solar critical to future market growth and integration of high penetrations of DERs** - Understanding the value solar can bring to the grid and the ability of new technologies to increase hosting capacity are key to sustained market growth and adequately valuing solar resources post-RSIP. Green Bank and UI are hoping to demonstrate this value via the Localized Targeting of DERs demonstration project by deferring a planned infrastructure upgrade and shedding light on the ability of advanced inverter technologies to increase the hosting capacity of the distribution system. If successful, these technologies could have a significant impact on solar soft costs and enable more PV systems to be interconnected without additional infrastructure costs. In addition, Green Bank is participating in a PURA docket on Distribution System Planning that provides a forum to address significant barriers to greater DER deployment, for example: (1) clarification and improvement of interconnection processes, specifications and requirements for battery storage, (2) addressing infrastructure upgrade challenges especially for transformers, and (3) providing a suitable regulatory and process framework and physical infrastructure to implement new policy around DER compensation that continues to encourage DER deployment and contributes to grid modernization.
- **Continue to focus on the LMI market** – RSIP census tract AMI data shows that about 50% of RSIP approved projects in FY17 and FY18 were in 100% or lower AMI bands, demonstrating that there is a large opportunity to deploy solar PV in the LMI sector.

Infrastructure Sector Programs FY 2019 Targets

Of the programs being implemented in the Infrastructure Sector Programs, the following is a breakdown of the key targets for each program (see Table 7):

Table 7. Number of Projects, Capital Deployed, and Clean Energy Deployed (MW)

Program	# of Projects	Capital Deployed	Clean Energy Deployed (MW)
RSIP	6,000	$168,000,000	48.0
Total	6,000	$168,000,000	48.0

For Infrastructure Sector Programs, there are 10.3 full time equivalent staff members supporting one program, RSIP. The AD program was closed out in FY18.

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

CONNECTICUT GREEN BANK

Memo

To: Board of Directors of the Connecticut Green Bank

From: Lucy Charpentier, Bryan Garcia, Kerry O'Neill, and Eric Shrago

Cc Mackey Dykes, Brian Farnen, and Bert Hunter

Date: October 26, 2018

Deleted: July 27, 2018

Re: Residential Sector Programs – Program Performance towards Targets for FY 2018 - Restated

Deleted: Preliminary

Overview

Public Act 11-80 (PA 11-80), *An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future*, requires that the Connecticut Green Bank (Green Bank) develop and implement several programs to finance and otherwise support clean energy investment in residential projects to promote deep energy efficiency retrofits, renewable energy deployment, and fuel and equipment conversions in single-family and multifamily homes across the state. Due to the Connecticut General Assembly's mid-year reappropriation of monies from the Clean Energy Fund and RGGI to the General Fund, the Green Bank has had to scale back its programs.

For a description of the programs and the TAM and SAM, please see the Comprehensive Plan for Fiscal Years 2017 through 2019.

Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of the Green Bank on July 21, 2017 and revised on January 26, 2018,[1] the following are the performance targets for FY 2018 and progress made to targets for the Residential Sector Programs (see Table 1) as of June 30, 2018.

Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan for FY 2018

[1] For mid-year revisions to budget and targets, see "Q2 Progress to Targets" memo of January 19, 2018 on page 74 – click here

Key Metrics	Program Performance Original Targets (as of 07/01/17)	Program Performance Revised Targets[2] (as of 01/26/18)	Program Progress[34]	% of Goal
Capital Deployed[5]	$35,979,196	$47,567,394	$71,387,321	150%
Investment at Risk[6]			$11,349,108	
Private Capital[7]			$68,034,391	
Deployed (MW)	6.4	6.2	7.8	126%
# of Loans/Projects	1,185	1,926	2,392	124%
Leverage Ratio			7.1	

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In summary, for Residential Sector Programs in FY 2018, there were 2,392 projects (achieving 124% of the goal) requiring $71.3MM of investment (achieving 150% of the goal) that led to the deployment of 7.1 MW of clean energy deployed (achieving 124% of the goal), that delivered a leverage ratio of nearly 7:1 for private to public funds invested.

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Executive Summary for the Residential Sector Programs

The following is a bulleted executive summary of the Residential Sector Programs:

- Exceeded targets for all programs, though it should be noted that Multifamily Programs benefited from one $18.8 million "whale" deal this year
- Broke the $200 million threshold with $218 million of cumulative financing activity in the sector, including $146 million in residential 1-4 (6,027 projects) and $72 million in multifamily (73 projects)
- Multifamily is seeing mixed success with partnerships, resulting in staff and Green Bank consultants sourcing and driving the bulk of the deal flow, which limits growth and is not scalable
- By including sustainability points in the competition for coveted 9% low income housing tax credits, CHFA, with support from Green Bank, is singularly catalyzing development and transformation of the multifamily high performance building sector

[2] Multifamily Predevelopment financing target were not set for fiscal year 2017.

[3] Includes only closed transactions.

[4] Includes $106,950 in Capital Deployed, $106,950 in CGB Investment, and $25,500 in Private Capital for 4 Multifamily Predevelopment financing.

[5] Capital Deployed is used to measure Investment actuals to targets and it includes fees related to financing costs and adjustments for Fair Market Value which are not included in the Gross System Cost. It represents: the Fair Market Value for Commercial/Residential Leases, the Amount Financed or Gross System Cost (whichever is greater) for CPACE, the Amount Financed for Residential financing products and the Gross System Cost for all other programs.

[6] Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by Green Bank that are committed and invested in subsidies, credit enhancements, and loans and leases. Does not include commitments for the $600,000 guarantee for Connecticut Housing Investment Fund (now called Capital for Change) to support their recapitalization from Webster Bank for residential 1-4 energy lending, including Smart-E lending, or the $5,000,000 guarantee to Housing Development Fund for the repayment of the MacArthur Foundation program related investment.

[7] Private Investment is based on the Gross System Cost and includes adjustments related to financing costs or Fair Market Value.

- Launched the EnergizeCT Health and Safety Revolving Loan Fund for multifamily properties using $1.5 million from CT Department of Energy and Environmental Protection, but uptake was limited speaking to the challenges in addressing this market
- Invested in $6.4 million of project systems in the PosiGen Solar for All program
- Achieved some market transformation in Smart-E with a $4 million investment of ARRA-SEP funds in a 0.99% special offer available from Jun-Dec 2017: saw a 4x increase in monthly volume post-offer, vs. pre-offer, strong interest in the product from new contractors, and a movement towards self-funding interest rate buydowns by select contractors and one lender (for a limited-time offer with Eversource for gas expansion).
- The number of credit challenged Smart-E loans remains low due to the inability to promote the offer broadly after the budget was eliminated due to the legislative sweeps, however the gap is closing in terms of uptake across the income bands
- Launched the Smart-EV Loan Pilot which saw 32 closed loans in the first 6 months and $1 million in principal, though not the uptake of used vehicles that was hoped for
- Concluded the first phase of the Green and Healthy Homes project, which highlighted a strong foundation in the state for an integrated energy, housing and health intervention model; secured access to Medicaid data to begin ROI analysis (one of 2 states to do this)

Residential Sector Programs – Single Family

The following are brief descriptions of the progress made under the Comprehensive Plan for FY 2018 in the Residential Sector Programs:

- **Energize CT Smart-E Loan** – a credit enhancement program that uses repurposed ARRA-SEP funds as a loan loss reserve and interest rate buy down to attract private capital from local credit unions and community banks. The product provides low interest (i.e. 4.49-6.99%) unsecured loans at long terms (i.e. between 5 to 20 years) for technologies that are consistent with the goals of the Comprehensive Energy Strategy and included in FY18 special offers of 0.99% rates for installing multiple eligible measures or converting to natural gas or installing renewable heating and cooling technologies (see Table 2).

Table 2. Energize CT Smart-E Loan Overview for FY 2018 (Lender data is as of June 30, 2018)

Program Data	Approved	Closed	Total
Projects	296	1,762	2,058
Installed Capacity (MW)	0.2	3.8	4.0
Lifetime Clean Energy Produced (MWh)	9,275	199,280	208,555
Annual Combined Energy Generated & Saved (MMBtu)	1,763	40,726	42,490
Subsidies ($'s)	$0	$0	$0
Credit Enhancement ($'s)[8]	$0	$5,682,193	$5,682,193

[8] Interest rate buydown data as of 6/30/2018. Based on the Objective Functions for the Smart-E Loan, the credit enhancement for the second loss reserve represents 7.5% of the value of the local lender loans for Class A loans (FICO of >680) or 15% of the value of the local lender loans for Class Be loans (FICO of 640-679). This Includes $1,393,935 in loan loss reserves and $4,040,301 in interest rate buydowns.

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Loans or Leases ($'s)	$0	$0	$0
Total Green Bank Investment ($'s)	$0	$5,682,193	$5,682,193
Private Capital ($'s)	$3,696,060	$30,184,420	$33,880,480
Direct Job Years	6	146	152
Indirect & Induced Job Years	8	190	198
Lifetime Tons of CO2 Emissions	4,984	107,737	112,721

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For a breakdown of the Smart-E Loan Channel, see Table 3.

Table 3. Energize CT Smart-E Loans by Channel

Smart-E Loan Channel	Closed	% of All Loans
Home Performance	167	9%
HVAC	1,141	65%
Solar PV	390	22%
Blank	62	4%
Total	1,762	100%

For a breakdown of the Smart-E Special Offers, see Table 4.

Table 4. Energize CT Smart-E Loan Special Offers

Smart-E Loan Special Offers	Target	Closed	% of Goal	% of Special Offers
Bundle	299	686	229%	53%
Natural Gas	19	379	1995%	29%
Heat Pump	56	220	393%	17%
Total Special Offers	374	1,285	344%	100%
Standard Offer	66	477	723%	
Total Offers	440	1,762	400%	

For a breakdown of Smart-E loan volume by credit score band, see Table 5.

Table 5. Energize CT Smart-E Credit Scores

Credit Ranges							
Unknown	<639	640-679	680-699	700-719	720-739	740+	Grand Total
44	47	114	166	198	193	1,000	1,762
2%	3%	6%	9%	11%	11%	57%	

For a breakdown of Smart-E loan volume and investment by census tracts categorized by Area Median Income (AMI) bands and Distressed Communities as designated by DECD, see Tables 6 and 7. It should be noted that Smart-E is not an income targeted program and only in the second half of FY18 began offering the expanded credit-challenged version of the program,

opening new opportunities to partner with mission-oriented lenders focused on reaching consumers in underserved lower income markets.

Table 6. Smart-E Loan Closed Activity in Metropolitan Statistical Area (MSA) Area Median Income (AMI) Bands

MSA AMI Band	Owner Occupied 1-4 Unit Households	% of Total HHs	# Project Units for FY 2018	% Project Units for FY 2018	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
<60%	60,769	7%	111	6%	185	6%	3.0	$2,438,108	5%
60%-80%	99,220	12%	195	11%	313	11%	3.2	$4,050,762	8%
80%-100%	165,331	19%	312	18%	529	18%	3.2	$7,931,520	16%
100%-120%	187,463	22%	397	23%	649	22%	3.5	$10,951,565	23%
>120%	345,311	40%	744	42%	1,263	43%	3.7	$22,913,105	47%
Total	858,094	100%	1,759	100%	2,939	100%	3.4	$48,285,059	100%

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MSA AMI Band	Owner Occupied 1-4 Unit Households	% of Total HHs	# of FY Project Units
<60%	60,769	7%	111
60%-80%	99,220	12%	195
80%-100%	165,331	19%	312
100%-120%	187,463	22%	397
>120%	345,311	40%	744
Unknown		0%	3
Total	858,094	100%	1,762

Table 7. Smart-E Loan Closed Activity in Distressed Communities

MSA AMI Band	Owner Occupied 1-4 Unit Households	% of Total HHs	# Project Units for FY 2018	% Project Units for FY 2018	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
Yes	438,710	32%	380	22%	624	21%	1.4	$8,704,246	18%
No	916,003	68%	1,380	78%	2,316	79%	2.5	$39,620,812	82%
Total	1,354,713	100%	1,760	100%	2,940	100%	2.2	$48,325,059	100%

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Distressed Designation	Total Households	% of Total HHs	# of FY Project Units
Distressed	438,710	32%	38
Not Distressed	916,003	68%	1,37
Unknown		0%	
Total	1,354,713	100%	1,76

- **<u>PosiGen Solar for All</u>** – a solar PV lease and energy efficiency ESA financing program that focuses on the low to moderate income (LMI) market segment. Supported by $8.5 million subordinated debt investment from the Connecticut Green Bank, into a total fund of $45 million to support nearly 1,700 homes with a focus on the low-to-moderate income market segment utilizing alternative underwriting approaches that examine factors such as bill payment history and bad debt and bank databases (see Table 8). 97% of projects include light weatherization and efficiency provided by HES or HES-IE and 63% of customers received deeper measures through PosiGen's energy efficiency agreement. The Solar for All program has been successful at reaching the LMI market segment with 63% of homes verified as low incomes. An independent survey of PosiGen customers has been conducted that found high levels of satisfaction with the product and with their savings.

Table 8. PosiGen Solar for All Overview for FY 2018 (data is as of June 30, 2018)

Program Data	Approved	Closed	Total
Projects	92	612	704
Installed Capacity (MW)	0.6	3.9	4.5
Lifetime Clean Energy Produced (MWh)	25,774	159,807	185,581

Annual Combined Energy Generated & Saved (MMBtu)[9]	4,888	30,991	35,878
Subsidies ($'s)	$0	$0	$0
Credit Enhancement ($'s)	$0	$0	$0
Loans or Leases ($'s)	$828,000	$5,508,000	$6,336,000
Total Green Bank Investment ($'s)	$828,000	$5,508,000	$6,336,000
Private Capital ($'s)	$1,402,690	$11,126,184	$12,528,874
Direct Job Years	7	44	51
Indirect & Induced Job Years	8	55	64
Lifetime Tons of CO2 Emissions	13,886	86,192	100,078

For a breakdown of PosiGen Solar for All volume and investment by census tracts categorized by Area Median Income bands and Distressed Communities as designated by DECD, see Tables 9 and 10. As an income-targeted program, this table illustrates the degree to which the goal of serving consumers in lower income communities is being met.

Table 9. PosiGen Closed Activity in Metropolitan Statistical Area (MSA) Area Median Income (AMI) Bands

MSA AMI Band	Owner Occupied 1-4 Unit Households	% of Total HHs	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
<60%	60,769	7%	225	37%	615	38%	10.1	$16,437,932	37%
60%-80%	99,220	12%	143	23%	358	22%	3.6	$9,704,975	22%
80%-100%	165,331	19%	109	18%	282	17%	1.7	$8,010,661	18%
100%-120%	187,463	22%	65	11%	160	10%	0.9	$4,572,183	10%
>120%	345,311	40%	70	11%	200	12%	0.6	$5,808,885	13%
Unknown		0%	0	0%	0	0%	0.0	$0	0%
Total	858,094	100%	612	100%	1,615	100%	1.9	$44,534,636	100%

Table 10. PosiGen Closed Activity in Distressed Communities

Distressed Designation	Total Households	% of Total HHs	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
Distressed	438,710	32%	379	62%	984	61%	2	$26,762,149	$61.00
Not Distressed	916,003	68%	231	38%	629	39%	1	$17,706,587	$19.33
Unknown		0%	2	0%	2	0%	0	$65,900	$0.00
Total	1,354,713	100%	612	100%	1,615	100%	1	$44,534,636	$32.87

Residential Sector Programs – Multifamily

The following are brief descriptions of the progress made under the Comprehensive Plan for FY 2018 in the Residential Sector Programs for Multifamily properties:

[9] Includes an additional 15.0 MMBtu for each project for the HES audit.[10] This is the actual loan loss reserve position of the LIME loan as of 6/30/2017

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- **Multifamily** – offerings for both the affordable and market rate multifamily segments include pre-development loan programs supported by Green Bank capital and term financing options such as the Low Income Multifamily (LIME) loan offered by Capital for Change and supported by $3,500,000 of seed capital and $625,000 of ARRA-SEP and Green Bank funds for a loss reserve, a Catalyst Loan Fund for gap financing and health and safety remediation supported by Green Bank capital and Regional Greenhouse Gas Initiative funds provided by DEEP, and C-PACE and solar PPA options, leveraging the C&I sector programs (see Table 11). Affordable pre-development loans and gap financing are offered through a $5 million program-related investment from the MacArthur Foundation, housed at the Housing Development Fund (HDF), backed by a Green Bank repayment guaranty (see Table 12). Units served this fiscal year are noted in Table 13.

Table 11. Multifamily Term Financing Overview for FY 2018

Program Data	Approved	Closed	Total
Projects	6	11	17
Installed Capacity (MW)	0.3	0.1	0.4
Lifetime Clean Energy Produced (MWh)	2,426	19,702	22,128
Annual Combined Energy Generated & Saved (MMBtu)	331	5,034	5,635
Subsidies ($'s)	$0	$0	$0
Credit Enhancement ($'s) [10]	$0	$43,373	$43,373
Loans or Leases ($'s)	$0	$101,190	$101,190
Total Green Bank Investment ($'s)	$0	$144,563	$144,563
Private Capital ($'s)	$4,144,180	$25,949,670	$30,093,850
Direct Job Years	18	39	56
Indirect & Induced Job Years	23	50	74
Lifetime Tons of CO2 Emissions	1,307	10,469	11,776

Table 12. Multifamily Pre-Development Financing Overview for FY 2018

Program Data	Approved	Closed	Total
Projects	35	7	42
Installed Capacity (MW)	-	-	-
Lifetime Clean Energy Produced (MWh)	-	-	-
Annual Combined Energy Generated & Saved (MMBtu)	-	-	-
Subsidies ($'s)	$0	$0	$0
Credit Enhancement ($'s)	$0	$0	$0
Loans or Leases ($'s)	$49,275	$14,351	$63,626
Total Green Bank Investment ($'s)	$49,275	$14,351	$63,626
Private Capital ($'s)	$501,235	$774,117	$1,275,352

[10] This is the actual loan loss reserve position of the LIME loan as of 6/30/2017

Direct Job Years	-	1	1
Indirect & Induced Job Years	-	2	2
Lifetime Tons of CO2 Emissions	-	-	-

Table 13. Multifamily Number of Units

	Approved	Closed	Total
Affordable	1,303	1,694	2,991
Market Rate	1,181	0	1,187
Total # of Multifamily Units	2,484	1,694	4,178

For a breakdown of Multifamily volume and investment by census tracts categorized by Area Median Income bands and Distressed Communities as designated by DECD, see Tables 14 and 15. As a program predominantly focused on properties that serve low-to-moderate income residents, this table doesn't reflect the degree to which the goal of serving lower income residents is being met. The program is equally focused on affordable housing properties located in more affluent communities and census tracts that are housing families of lower incomes as it is on affordable housing properties in lower income census tracts.

Table 14. Multifamily Closed Activity in Metropolitan Statistical Area (MSA) Area Median Income (AMI) Bands

MSA AMI Band	Total Owner/Rental Occupied 5+ Unit Households	% of Total HHs	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
<60%	86,225	37%	1,609	95%	2,384	44%	27.6	$42,015,830	$487.28
60%-80%	45,398	19%	32	2%	645	12%	14.2	$6,036,438	$132.97
80%-100%	49,125	21%	30	2%	977	18%	19.9	$7,831,793	$159.43
100%-120%	30,753	13%	0	0%	739	14%	24.0	$8,514,735	$276.87
>120%	22,618	10%	24	1%	362	7%	16.0	$5,696,116	$251.84
Unknown		0%	0	0%	298	6%	0.0	$2,112,015	$0.00
Total	234,119	100%	1,695	100%	5,405	100%	23.1	$72,206,926	$308.42

Table 15. Multifamily Closed Activity in Distressed Communities

Distressed Designation	Total Households	% of Total HHs	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 HHs	Cumulative Capital Deployed	Cumulative Capital Deployed / HHs
Distressed	438,710	32%	1,495	88%	2,501	46%	6	$43,920,159	$100.11
Not Distressed	916,003	68%	200	12%	2,904	54%	3	$28,286,768	$30.88
Unknown		0%	0	0%	0	0%	0	$0	$0.00
Total	1,354,713	100%	1,695	100%	5,405	100%	4	$72,206,926	$53.30

For a breakdown of the use of Green Bank resources for Residential Programs – see Table 16.

Table 16. Distribution of Green Bank Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases for FY 2018[11]

Program	Subsidies		Credit Enhancements		Loans and Leases		Total
Smart-E Loan	$0	0%	$5,682,193[12]	100%	$0	0%	$5,682,193
PosiGen	$0	0%	$0	0%	$5,508,000	100%	$5,508,000
Multifamily Term	$0	0%	$43,373	30%	$101,190	70%	$144,563
Multifamily Pre-Development	$0	0%	$0	0%	$14,351	100%	$14,351
Total	$0	0%	$5,725,567	50%	$5,623,541	51%	$11,349,108

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Of these programs, the following is a breakdown of their contributions made thus far towards the performance target and the human resources required to implement them (see Table 17):

Table 17. Program Progress Made for FY 2018[13]

Key Metrics	Smart-E	PosiGen	Multifamily Term[14]	Multifamily Pre-Dev	Total Program Progress
Date of Program Approval	Nov 2012	Jun 2015	Oct 2013 – Jan 2017	Oct 2013 – Oct 2015	
Date of Program Launch	Nov 2013	Jul 2015	Oct 2013 – Jan 2017	Oct 2013 – Oct 2015	
Ratepayer Capital at Risk	$5,682,193	$5,508,000	$144,563	$14,351	$11,349,10
Private Capital	$30,184,420	$11,126,184	$25,949,670	$774,117	$68,034,391
Deployed (MW)	3.8	3.9	0.1	-	7.8
# of Loans/Installations	1,762	612	11	7	2,392
Lifetime Production (MWh)	199,280	159,807	19,702	-	378,790
Annual Combined Energy Generated & Saved (MMBtu)	40,726	30,991	5,034	-	76,751

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"Top 5" Headlines

The following are the "Top 5" headlines for Residential Sector Programs for FY 2018:

1. PosiGen solar company announces $5M investment

   Greenwich Time

[11] Includes only closed transactions
[12] Includes $1,393,935 in loan loss reserves and $4,288,258 in interest rate buydowns.
[13] Includes only closed transactions
[14] Multifamily is a collection of individual programs, each with their own approval and launch dates.

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Stonehenge Growth Capital, a subsidiary of Stonehenge Capital Co., made a $5 million investment in PosiGen that will enable the solar company to expand operations in Connecticut. PosiGen, based in Louisiana with local offices in Bridgeport, has installed panels for 10,000 families across four states, including Connecticut.

2. Manchester Housing Authority to Become More Energy Efficient and Sustainable

   Facilitiesnet

   The Connecticut Green Bank provides funding for infrastructure improvements for Manchester Housing Authority (MHA) in Conn., located 11 miles east of Hartford. Valued at almost $2.7 million, the 20-year performance contract is projected to generate annual energy savings through use of solar photovoltaic as well as other energy efficiency measures. The project is part of a comprehensive modernization plan for approximately 60 percent of the Authority's portfolio of housing units and developments.

3. CESA honors six states for clean energy excellence

   Solar Power World

   The Clean Energy States Alliance (CESA), a national nonprofit coalition of public agencies working together to advance clean energy, announced the Connecticut Green Bank's "Solar for All" partnership as a recipient of the 2018 State Leadership in Clean Energy Awards as an exemplary model for bringing LMI finance solutions to scale and achieving inclusive participation in the clean energy economy.

4. Hamden Announces Partnership with "Solar for All"

   Hamden Patch

   Mayor Curt Balzano Leng is pleased to announce Hamden's participation in the "Solar for All" program, which is a partnership between the Connecticut Green Bank and PosiGen Solar, to make clean energy more accessible and affordable to all Hamden homeowners.

5. Greenlighting Green Lending

   Multi-Housing News

   Connecticut Green Bank helps multifamily property owners shift away from the tendency to finance energy upgrades with reserves or commercial loans, instead using projected savings from those upgrades as the source of capital.

Lessons Learned

Based on the implementation of the Residential Sector Programs thus far, the following are the key lessons learned:

Residential 1-4

- **The 0.99% Smart-E special offer sparked market transformation, peaking enough interest to sustain the product at higher levels than before the offer was available.** In 7 months, the special offer brought 54 new contractors to the program who continued to offer the product without the interest rate buydown funds when the offer ended, resulting in a 4-fold increase in the monthly run rate now, with the offer gone, than the run rate prior to the campaign. The product at standard rates continues to attract new contractors, with 25 added in the last 6 months. The special offer helped to solidify relationships between contractors and lenders, who are now creating partnerships to offer contractor-led interest rate buydowns without the Green Bank. One lender, Mutual Security Credit Union, has partnered with Eversource Gas to offer Smart-E at a rate below the standard program rates (with no Green Bank support), to encourage the conversion to natural gas in two of their target communities.

- **Smart-E has seen higher penetration in lower Area Median Income bands but is still struggling to reach credit-challenged borrowers.** The program is closing the gap for market penetration across the income bands. This speaks to the continued appeal of the program and product for a wide swath of consumers in the market, and was bolstered by the addition of many new contractors during the 0.99% campaign. Smart-E is the only EnergizeCT product that does not require a down payment, which means more low-to-moderate income (LMI) homeowners were able to take advantage of the product. Despite the product now allowing credit scores as low as 580, we were unable to roll out the marketing aimed at reaching more credit-challenged borrowers due to the sweeps and elimination of the marketing budget. This remains a critical market segment for us to reach.

- **PosiGen is delivering on its promise to reach an underserved customer segment and deliver significant savings.** Through the Solar for All community-based outreach model and PosiGen's affordable offering, PosiGen is showing hard-to-reach homeowners it's worth it to go solar. An independent study by Opinion Dynamics found that a majority of PosiGen customers were unconvinced by *prior* solar offers due to cost, low expected savings and process complexity. These customers were not only compelled by PosiGen's offering, but have since realized savings from their solar system and energy efficiency measures. Through Green Bank's own analysis of offerings and market penetration, PosiGen is delivering significant savings from both solar and efficiency, and has helped drive the overall increase in LMI market penetration for solar, often amongst our lowest income homeowners.

- **The Smart-EV Loan Pilot accepted its first loan in January and has seen interest grow steadily.** The Tesla customer base has seen the most engagement due to the sales team highlighting the loan as an option for their Connecticut customers, as well as their website's blog where financing is a popular topic. Customers are recommending the loan to one another. Strategic outreach is being developed to engage dealers to create more activity in the used vehicle space.

- **Customer segmentation and credit data analysis shed light on size and motivations of LMI market.** An Experian analysis of state credit data showed creditworthy LMI borrowers in greater numbers than presumed. Experian data shows that over 70% of LMI households would meet a minimum FICO score for a third-party ownership solar model and an even great portion meeting the Smart-E criteria. Based on

a new customer segmentation analysis, 21% of LMI households would be interested in solar based on profiles of actual solar customers. Staff has worked to educate the solar installer and contractor industries on these findings, dispelling the myth that income dictates creditworthiness, and is actively partnering to help focus outreach and targeting for this critical market segment.

Multi-Family

Steady progress continues to be made against heavy trade winds…

- **Multifamily pipeline continues to be lumpy and long but progressing steadily.** The focus on strategic financing interventions including: pre-development resources, term financing for mid-cycle properties, solar, and health & safety, as well as gap financing, appears to be the right approach. We closed deals that the team has been shepherding for 3+ years, with sizes ranging from $6,000 for pre-development loans to a $2.6 million term loan for holistic energy improvements. The number of pre-development loans nearly doubled from FY17 to FY18, with the average loan size nearly tripling (reflecting higher passive house design costs being financed). Average term financing increased from $400K to ~$526K.

- **Deployment strategy for *EnergizeCT Health & Safety Revolving Loan Fund* needs adjustment.** Response to our first round RFP for EnergizeCT Health & Safety Funds was lethargic. Those applicants that did apply were seeking (and required) grants to successfully fund their projects. Green Bank provided two contingent letters of commitment for grant funding, one of which recently notified us that they will not be proceeding because DOH funding was not approved for the project. Taken as a whole, Green Bank permanent financing projects frequently require complex permutations of grant and permanent financing. Projects like these, seeking a combination of health & safety grants, low-interest energy gap financing, unsecured term loans and DOH CHAMP awards are not outside the norm. The second round RFP deadline is in late July. Once compete, we will reassess how we approach that market with these loan funds.

- **Strategic partnerships remain key to program marketing, outreach, delivery and overall sector development, but partner and client capacity remain a challenge.** The Multifamily Program continues to rely heavily on our program partners for these functions. Despite important partnerships, Green Bank staff and consultants do the bulk of origination activities, including project sourcing, shepherding, and financing execution. This is a reality that won't scale and remains a critical strategic challenge to be solved.

- **The joint *EnergizeCT Multifamily Initiative* continues to be an empty source of projects for mid-cycle multifamily financing by Green Bank**. This joint initiative with the utility companies is a large potential channel, and significant opportunity for owners to leverage cash flow from energy savings to further improve their buildings. Efforts to work with the utility companies and the EEB to identify and resolve areas of mis-alignment need to continue. Launched in March of 2017, the joint Multifamily Initiative has shown some promise in recent months, having received 6 property applications since January 2018, although none have been viable for Green Bank programs to-date

(either due to lack of owner responsiveness or project scopes limited to utility HES core services).

- **Identifying and successfully activating key points of leverage enables market transformation.** CHFA's 2018 Qualified Allocation Plan (QAP), that establishes points for highly competitive and coveted 9% affordable housing low income housing tax credits (LIHTC's), has singularly catalyzed the affordable multifamily high-performance building and passive house sector in Connecticut. It did this by providing 6 points for energy sustainability and passive house new construction developments. The initial draft of the 2019 QAP proposed a reduction in these points, which would have substantially harmed this important and burgeoning industry. As a result of extensive lobbying efforts, headed by members of the Multifamily Peer-to-Peer Network, CHFA increased sustainability points from 6 to 7 in the final QAP. This action enables the sector to continue growing, which, in turn, supports overall demand for more sustainable buildings and continued capacity building among the professional community that serves the sector. Further, CGB's ***Navigator Pre-Development Loan Program*** has become a strategic resource to support low income housing tax credit (LIHTC) funded passive house developments.

Residential Sector Programs FY 2019 Targets

Of the 4 program areas being implemented in the Residential Sector Programs, the following is a breakdown of the key targets for each program (see Table 18):

Table 18. Number of Projects, Capital Deployed, and Clean Energy Deployed (MW)

Program	# of Projects	Capital Deployed	Clean Energy Deployed (MW)
Smart-E Loan	540	$8,775,000	1.3
PosiGen Solar for All	586	$15,565,855	3.6
Multifamily Term Loans	15	$2,500,000	0.1
Multifamily Predevelopment Loans	4	$70,000	-
Total	1,145	$26,910,855	5.0

For Residential Sector Programs, there are 13.2 full time equivalent staff members supporting four (4) different products and programs. In addition, staff also support ongoing asset management operations of closed programs CT Solar Lease and CT Solar Loan.

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

CONNECTICUT GREEN BANK

Memo

To: Board of Directors of the Connecticut Green Bank

From: Lucy Charpentier, Mackey Dykes, Bryan Garcia, Eric Shrago, and Nicholas Zuba

Cc Brian Farnen and Bert Hunter

Date: October 26, 2018

Re: Commercial, Industrial and Institutional Sector Programs – Program Performance towards Targets for FY 2018 - Restated

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Overview

Pursuant to Public Act 12-2, the Connecticut Green Bank ("Green Bank") launched the Commercial and Industrial Property Assessed Clean Energy (C-PACE) program in January 2013. C-PACE is a statutorily mandated program that was the primary commercial and industrial (C&I) financing product in the comprehensive plan and budget for fiscal years 2017. In October 2017, the Connecticut General Assembly repurposed much of the funding provided by ratepayers for the Green Bank (for Fiscal Years 2018 and 2019) to the General Fund to close gaps in the state's budget forcing the Green Bank to reduce its operations and limiting its impact. Due to the Connecticut General Assembly's mid-year reappropriation of monies from the Clean Energy Fund to the General Fund, the Green Bank has had to scale back its programs including the development of an Energy Savings Agreement Product.

For a program description and information on the Total Addressable Market and Serviceable Addressable Market (SAM), please see the FY 2017 through FY 2019 Comprehensive Plan.

Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of the Green Bank on July 21, 2017 and revised on January 26, 2018,[1] the following are the performance targets for FY 2018 and progress made to targets for the Commercial, Industrial and Institutional Sector Programs (see Table 1) as of June 30, 2018.

Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan for FY 2018

Key Metrics	Program Performance Original Targets (as of 07/01/17)	Program Performance Revised Targets (of 01/26/18)	Program Progress[2]	% of Goal

[1] For mid-year revisions to budget and targets, see "Q2 Progress to Targets" memo of January 19, 2018 on page 74 – click here

[2] Includes only closed transactions

Capital Deployed[3]	$34,000,000	$34,000,000	$33,021,901	97%
Investment at Risk[4]			$8,356,472	
Private Capital[5]			$24,665,429	
Deployed (MW)	10.4	10.4	9.5	92%
# of Loans/Projects	67	67	78	116%
Leverage Ratio			4.0	

In summary, for Commercial, Industrial and Institutional Sector Programs in FY 2018, there were 78 projects (achieving 116% of the goal) requiring $33.0M of investment (achieving 97% of the goal) that led to the deployment of 9.5 MW of clean energy deployed (achieving 92% of the goal), that delivered a leverage ratio of 4:1 for private to public funds invested.

Executive Summary for the CI&I Sector Programs

The following is a bulleted executive summary of the Infrastructure Sector Programs:

- Despite CGB budget setbacks, C-PACE Program surpassed its projects closed and capital deployed goals for first time in program's history
- Broke 200 C-PACE projects closed threshold
- Launched C-PACE for New Construction pilot program, expanding C-PACE's reach to this untapped market
- Received increasing interest from 3rd party capital providers, with one new capital provider added in FY18
- 29% of the C-PACE project in FY18 included efficiency, slightly below the overall program average of 33%
- Deployed new Onyx and US Bank tax equity funds to support Commercial and Institutional Lease program, successfully closing new PPA projects using these funds in FY18
- Worked with utilities to select capital partners (Amalgamated Bank and National Energy Improvement Fund) and design a structure to the joint goal of CGB and the Energy Efficiency Board to reduce the cost and expand the availability of capital for the Small Business Energy Advantage program

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Commercial, Industrial and Institutional Sector Programs

The following are brief descriptions of the progress made under the last comprehensive plan in the Commercial, Industrial and Institutional Sector Programs:

- **C-PACE** – Commercial Property Assessed Clean Energy (C-PACE) is an innovative financing program that is helping commercial, industrial and multi-family property owners access affordable, long-term financing for smart energy upgrades to their buildings (see Table 2).

[3] Capital Deployed is used to measure Investment actuals to targets and it includes fees related to financing costs and adjustments for Fair Market Value which are not included in the Gross System Cost. It represents: the Fair Market Value for Commercial/Residential Leases, the Amount Financed or Gross System Cost (whichever is greater) for CPACE, the Amount Financed for Residential financing products and the Gross System Cost for all other programs.

[4] Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by the Connecticut Green Bank that are committed and invested in subsidies, credit enhancements, and loans and leases.

[5] Private Investment is based on the Gross System Cost and includes adjustments related to financing costs or Fair Market Value.

Table 2. C-PACE Overview for FY 2018

Program Data	Approved	Closed	Total
Projects	7	66	73
Installed Capacity (MW)	2.9	7.3	10.3
Lifetime Clean Energy Produced (MWh)	83,545	236,031	319,576
Annual Combined Energy Generated & Saved (MMBtu)	12,584	25,194	37,777
Subsidies ($'s)	$0	$0	$0
Credit Enhancement ($'s)	$0	$0	$0
Loans or Leases ($'s)	$3,049,706	$5,721,604	$8,771,310
Total Green Bank Investment ($'s)	$3,049,706	$5,721,604	$8,771,310
Private Capital ($'s)	$4,704,202	$21,034,002	$25,738,204
Direct Job Years	28	85	112
Indirect & Induced Job Years	36	111	147
Lifetime Tons of CO2 Emissions	45,011	127,812	170,823

C-PACE has been used to fund projects in economically diverse locations across the state as reflected by Table 3 for Metropolitan Statistical Area (MSA) Area Median Income (AMI) and Table 4 for Distressed Communities as designated by DECD. It should be noted that C-PACE is not an income targeted program.

Table 3. C-PACE Closed Activity in Metropolitan Statistical Area (MSA) Area Median Income (AMI) Bands

MSA AMI Band	Total Population	% of Total Population	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 People	Cumulative Capital Deployed	Cumulative Capital Deployed / Population
<60%	649,617	18%	8	12%	50	22%	0.1	$28,608,455	$44.04
60%-80%	509,088	14%	11	17%	27	12%	0.1	$11,959,162	$23.49
80%-100%	641,084	18%	12	18%	38	16%	0.1	$28,311,404	$44.16
100%-120%	653,309	18%	8	12%	45	19%	0.1	$20,743,162	$31.75
>120%	1,126,543	31%	22	33%	64	28%	0.1	$41,646,319	$36.97
Unknown		0%	5	8%	8	3%	0.0	$4,623,068	$0.00
Total	3,579,641	100%	66	100%	232	100%	0.1	$135,891,568	$37.96

Table 4. C-PACE Closed Activity in Distressed Communities

Distressed Designation	Total Population	% of Total Population	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 People	Cumulative Capital Deployed	Cumulative Capital Deployed / Population
Distressed	1,162,653	32%	18	27%	76	33%	0	$58,827,769	$50.60
Not Distressed	2,425,917	68%	48	73%	156	67%	0	$77,063,799	$31.77
Unknown		0%	0	0%	0	0%	0	$0	$0.00
Total	3,588,570	100%	66	100%	232	100%	0	$135,891,568	$37.87

- **CT Solar Lease (Commercial)** – a third-party ownership offering that combines public and private funding through the Connecticut Solar Lease Program to provide Power Purchase Agreements (PPAs) for solar PV to creditworthy commercial and industrial, as well as nonprofit, municipal, and multifamily housing, end-users of electricity (see Table 5). This program supports solar PV projects between 50 kW - 2 MW in size – with an average size of 250 kW. As the CGB concludes its partnership with Onyx Renewables this fall, we will continue to serve the market with our PPA product through the Inclusive Prosperity Capital spin-out, while seeking to build on initial successes with the Connecticut State College and University system over the past year to further serve state agencies – alongside the rest of the market – in FY19.

Table 5. CT Solar Lease Overview for FY 2018

Program Data	Approved	Closed	Total
Projects	-	22	22
Installed Capacity (MW)	-	3.5	3.5
Lifetime Clean Energy Produced (MWh)	-	100,322	100,322
Annual Combined Energy Generated & Saved (MMBtu)	-	9,081	9,081
Subsidies ($'s)	$0	$0	$0
Credit Enhancement ($'s)	$0	$0	$0
PPAs ($'s)	$0	$4,659,026	$4,659,026
Total Green Bank Investment ($'s)	$0	$4,659,026	$4,659,026
Private Capital ($'s)	$0	$5,612,309	$5,612,309
Direct Job Years	-	21	21
Indirect & Induced Job Years	-	26	26
Lifetime Tons of CO2 Emissions	-	54,050	54,050

The CT Solar Lease program has been used to fund projects in economically diverse locations across the state as reflected by Table 6 for Metropolitan Statistical Area (MSA) Area Median Income (AMI) and Table 7 for Distressed Communities as designated by DECD. It should be noted that C-PACE is not an income targeted program.

Table 6. CT Solar Lease Closed Activity in Metropolitan Statistical Area (MSA) Area Median Income (AMI) Bands

MSA AMI Band	Total Population	% of Total Population	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 People	Cumulative Capital Deployed	Cumulative Capital Deployed / Population
<60%	649,617	18%	1	5%	7	7%	0.0	$4,102,532	$6.32
60%-80%	509,088	14%	2	9%	7	7%	0.0	$4,578,558	$8.99
80%-100%	641,084	18%	3	14%	15	16%	0.0	$11,080,393	$17.28
100%-120%	653,309	18%	3	14%	26	28%	0.0	$18,363,806	$28.11
>120%	1,126,543	31%	13	59%	39	41%	0.0	$31,165,366	$27.66
Unknown		0%	0	0%	0	0%	0.0	$0	$0.00
Total	3,579,641	100%	22	100%	94	100%	0.0	$69,290,655	$19.36

Table 7. CT Solar Lease Closed Activity in Distressed Communities

Distressed Designation	Total Population	% of Total Population	# of FY Project Units	% of FY Project Units	# of Cumulative Project Units	% of Cumulative Projects	Cumulative Project Units / 1,000 People	Cumulative Capital Deployed	Cumulative Capital Deployed / Population
Distressed	1,162,653	32%	5	23%	10	11%	0	$6,241,486	$5.37
Not Distressed	2,425,917	68%	17	77%	84	89%	0	$63,049,169	$25.99
Unknown		0%	0	0%	0	0%	0	$0	$0.00
Total	3,588,570	100%	22	100%	94	100%	0	$69,290,655	$19.31

For a breakdown of the use of the Green Bank resources for Commercial, Industrial and Institutional Programs, see table 8 below.

Table 8. Distribution of Green Bank Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases for FY 2018

Program	Subsidies		Credit Enhancements		Loans and Leases		Total[6]
C-PACE	$0	0%	$0	0%	$5,721,604	100%	$5,721,604
CT Solar Lease	$0	0%	$0	0%	$4,659,026	100%	$4,659,026
Total*	$	%	$0	0%	$8,356,472	100%	$8,356,472

Of these programs, the following is a breakdown of their contributions made thus far towards the performance target and the human resources required to implement them (see Table 9):

Table 9. Program Progress Made in FY 2018[7]

Key Metrics	C-PACE	Commercial Lease	Total Program Progress[8]
Date of Program Approval	Sep 2012	Jun 2013	
Date of Program Launch	Jan 2013	Sep 2013	
Ratepayer Capital at Risk	$5,721,604	$4,659,026	$8,356,472
Private Capital	$21,034,002	$5,612,309	$24,665,429
Deployed (MW)	7.3	3.5	9.5
# of Loans/Installations	66	22	78
Lifetime Production (MWh)	236,031	100,322	299,132
Annual Combined Energy Generated & Saved (MMBtu)	25,194	9,081	33,806

"Top 5" Headlines

The following are the "Top 5" headlines for Commercial, Industrial and Institutional Sector Programs for FY 2018:

[6] Totals are adjusted to remove projects that overlap programs.

[7] Includes only closed transactions

[8] Totals are adjusted to remove projects that overlap programs.

1. Green Bank extends renewable energy financing program to new construction 6/15/18
   HARTFORD BUSINESS JOURNAL
   The [**Connecticut**] **Green Bank** announces a two-year pilot for C-PACE program usage for the design and construction of new buildings.

2. CT clean energy program invests $114M in 200 projects 1/31/18
   HARTFORD BUSINESS JOURNAL
   "The [**Connecticut**] **Green Bank** team has built a very effective program centered on high standards, great marketing, and an open market approach that encourages private sector engagement and investment in improving buildings throughout the state," said David Gabrielson, PACENation's executive director.

3. Green Bank names solar partner 9/14/17
   HARTFORD BUSINESS JOURNAL
   The **Connecticut Green Bank** selected Onyx Renewable Partners to help spur deployment of commercial-scale solar in the state.

4. Manchester Community College to receive solar energy system this fall 9/11/17
   MANCHESTER JOURNAL INQUIRER
   Bryan Garcia, the president and CEO of **Connecticut Green Bank**, said the solar project saves a significant amount of money for taxpayers. “The CSCU has shown tremendous leadership with this initiative,” Garcia said. “And with a high-quality partner like GE overseeing the installations, there is little question these systems will perform and create a win-win-win for all involved.”

5. Energy Upgrades Help Connecticut Businesses Save Money, Stay Competitive 8/1/17
   HARTFORD COURANT
   “The C-PACE financing program is the smartest long-term solution for achieving our clean energy demands,” said Jerry Martorelli, owner of Galleria Design Center. “With C-PACE, we are able to reduce operation expenses and increase efficiency, all while making a measurable impact on the environment and surrounding community.”

Lessons Learned

Based on the implementation of the Commercial, Industrial and Institutional Sector Programs thus far, the following are the key lessons learned:

- **Contractors are vital to growth of C-PACE** – A clear majority of C-PACE contractors do not do repeat projects. While contractor training sessions with CGB’s Technical Administrator have helped expand the contractor base in Connecticut, it has not translated into more repeat contractors. In addition to our previous efforts, CGB staff worked more closely with contractors by holding one-on-one meetings to provide them with tools and assistance to encourage them to do more projects. This one-on-one grooming has helped get some contractors (i.e. 64Solar, Total Energy Connection, etc.) to close on and develop multiple C-PACE projects in a single fiscal year. CGB has also focused on improving the process and reducing closing time to reduce the perception that C-PACE is too hard and takes too long.
  CGB continues to invest in recruiting new contractors to the program and providing training and assistance to deploy C-PACE financing.
- **Campaigns and Partnerships** – the focused marketing and grant offering to the manufacturing sector through the Energy on the Line campaign continued to be a

success. But it was apparent that campaigns and partnerships take time to flourish and mature. Projects that came from Energy on the Line largely closed in FY18, but this effort started late in FY16, showing that projects still take time to develop and campaigns like this take time to flourish. A campaign targeting older customers did help to yield one C-PACE PPA project, but it is clear more time is needed to yield more projects. Direct outreach to building owners works and CGB will focus on continuing to deploy direct-to-building owner campaigns as well as outreach by the team.

- **Open Market** – Connecticut's open market platform continues to attract capital providers to Connecticut (one capital provider became their own originator, and five others expressed interest in becoming their own originators in FY18), seeing the most interest from new capital providers in a single year. The influx of new capital providers originating their own C-PACE transactions may help to scale up and grow the C-PACE Program in FY19 and beyond.

- **PPA** – As this product has grown, it has become increasingly clear that a hands-on approach to the development and financing of commercial-scale PPA projects is a key to the Green Bank's success with this program. From credit underwriting to document negotiation to contractor management, these projects do best when the Green Bank can bring a combination of programmatic discipline and market-driven flexibility to solve problems and bring projects across the finish line. While we need to continue to streamline our processes to achieve scale, and enhance our asset management capabilities as program volume has grown, the Green Bank PPA remains a popular product in an underserved market and a source of positive net cash flow for the organization.
  CGB continues to make progress on using the PPA to open up the state building portfolio for solar. The Attorney General has approved a template PPA and, working with DEEP, CGB has begun outreach to agencies to identify sites.

Commercial, Industrial, and Institutional Sector Programs FY 2019 Targets

Of programs being implemented in the Commercial, Industrial, and Institutional Sector Programs, the following is a breakdown of the key targets (see Table 10):

Table 10. Number of Projects, Capital Deployed, and Clean Energy Deployed (MW)

Program	# of Projects	Capital Deployed	Clean Energy Deployed (MW)
C-PACE	57	$24,082,500	6.6
CT Solar Lease	25	$14,062,500	6.3
Total[9]	73	$33,082,500	10.6

For Commercial, Industrial, and Institutional Sector Programs, there are 13 full time equivalent staff members supporting three (3) different products and programs.

[9] Totals are adjusted to remove projects that overlap programs.

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

CONNECTICUT GREEN BANK

Memo

To: Connecticut Green Bank Board of Directors

From: Eric Shrago, Director of Operations

CC: Bryan Garcia, President and CEO

Date: October 26, 2018

Deleted: July 27

Re: Fiscal Year End 2018 Progress to Targets - Restated

The following memo outlines Connecticut Green Bank (CGB) progress to combined Q1, Q2, Q3 and Q4 targets for Fiscal Year (FY) 2018 as of June 30, 2018, the end of the fiscal year.

Infrastructure Sector

The Infrastructure sector is above its target due to faster growth than anticipated in the Residential Solar Investment Program (RSIP). FY 2018 ended 135% above the Projects Target, 133% above the Capital Target, and 132% above the Capacity Target. Installed costs increased to $3.72/W on average, compared to $3.49/W last fiscal year, due to increases in the costs of doing business: trade tariffs and rising commodity prices, uncertainty in equipment availability, customer acquisition, labor and insurance, permitting and interconnection, infrastructure modification costs, financing costs, privatizing of Solarize, and more competition.

The Green Bank Anaerobic Digester (AD) and Combined Heat and Power (CHP) programs were terminated and the Green Bank will review projects in this space as one off investment opportunities. No AD or CHP projects closed this fiscal year.

Table 1. Infrastructure Sector FY 2018 Progress to Targets[1]

	Projects			Capital Deployed			Capacity		
Product/Program	Closed	Target	% to Target	Closed	Target	% to Target	Closed	Target	% to Target
RSIP	5,971	4,431	135%	$181,734,456	$136,300,000	133%	48.8	37.0	132%
Infrastructure Total	**5,971**	**4,431**	**135%**	**$181,734,456**	**$136,300,000**	**133%**	**48.8**	**37.0**	**132%**

Residential Sector

Smart-E targets performance to date has substantially exceeded targets. The program has achieved 130% of its revised Projects Target, 113% of its revised Capital Target, and 144% of its Capacity Target. This has been due to a larger than anticipated volume at the standard rates, now that there are no more special offers in the market. The limited time 0.99% promotion was a successful market transformation activity that both drove deeper savings, but also attracted many new contractors to the

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[1] An estimated 3 MW will likely be cancelled in 1Q 2019 due to expired incentives for projects approved more than 365 days earlier. Using per project averages of 8 kW and $30,000, this would reduce the totals by 375 projects and $11.3M in capital.

product who have stayed with the product now that it's back to standard rates. Through the last two quarters of FY18, 25 new contractors became eligible to offer Smart-E Loans to their customers, with a majority in the HVAC industry, others in home performance and one new residential solar company. Higher volume contractors continue to explore self-funding interest rate buydowns, with some HVAC and solar contractors actively offering reduced rates to their customers. Two Smart-E credit unions are currently offering contractors the self-funding IRB option, while others continue to explore the possibility. Lenders have requested to pilot the contractor-funded IRB option with a few contractors before offering it to the full list of 300+ Smart-E eligible companies.

The Smart-E EV pilot has seen 32 loans with an average IRB of $1916.17. The pilot was designed to help the sale of EVs coming off lease, however there have been only three used vehicles so far. We are working with our lenders to identify a prioritized list of dealers to engage as well as targeted customer segment groups, such as trade unions, to help get the word out about the program and to increase the sale of used EVs.

The Low-to-Moderate-Income (LMI) lease program offered through PosiGen exceeded its targets. The Program achieved 110% of its Projects Target, 112% of its Capital Target, and 122% of its Capacity Target and 63% of PosiGen sales were to LMI customers. We continue to see a high percentage uptake (63%) by PosiGen customers of the Energy Savings Agreement (ESA) offering representing further energy savings. Green Bank staff worked with PosiGen to launch a campaign in Hamden in May which has signed 23 customers in 7 weeks, shaping up to be the most successful town campaign yet. An independent survey of PosiGen customers has been conducted that found high levels of satisfaction with the product and with their savings.

Consistent with previous years, the Multifamily Program notably exceeded capital deployed goals. Project count targets were in-line with projections. Solar targets lagged. For pre-development financing, the multifamily team achieved 117% of its project count goal and 172% of its financing target. Term financing reflected 92% of its project count goal, 1 project short, and 345% of its financing target (including one $18.8M "whale" project). The former instance was due to closing related timing issues (several projects of which have already closed in FY19). Lagging behind, the program achieved only 34% of its solar financing target, due, in large part to one major solar developer working through an extended queue of previously financed projects (and thus, not seeking financing for new projects) and the delayed development timelines for solar PPA projects on properties funded by Low Income Housing Tax Credits and other state funding sources.

Taken as a whole, those projects the Multifamily Program is managing continue to be characterized by a "barbell" distribution – sophisticated and motivated multifamily owners typically drive projects through our pre-development and term financing programs with ease; less sophisticated, motivated, or even those financially distressed multifamily projects proceed slowly with extensive technical support from Green Bank staff. In addition to energy cost issues, many such projects also encounter challenges with project management, timing, and health and safety-related issues that retard our ability to finance energy analysis and improvement in a timely fashion.

MFH # of Units	Closed
Affordable	1,688
Market Rate	6
Total	**1,694**

The Multifamily Pre-development and Term lending projects closed year to date impact 1694 housing units, all of which serve low- and moderate-income residents.

Table 2. Residential Sector FY 2018 Progress to Targets

	Projects			Capital Deployed			Capacity		
Product/Program	Closed	Target	% to Target	Closed	Target	% to Target	Closed	Target	% to Target
Smart-E	1,762	1,352	130%	$27,933,997	$24,765,556	113%	3.8	2.6	144%
Low Income Loans/Leases (Pc	612	556	110%	$16,634,184	$14,805,838	112%	3.9	3.2	122%
Multi-Family Term	11	12	92%	$26,050,860	$7,550,000	345%	0.1	0.4	34%
Multi-Family Pre-Developmen	7	6	117%	$768,281	$446,000	172%	0.0	0.0	0%
Resi Total	**2,392**	**1,926**	**124%**	**$71,387,321**	**$47,567,394**	**150%**	**7.8**	**6.2**	**126%**

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	Projects		
Product/Program	Closed	Target	
Smart-E	1,762	1,352	
Low Income Loans/Lease	612	556	
Multi-Family Term	11	12	
Multi-Family Pre-Develop	7	6	
Resi Total	**2,392**	**1,926**	

Table 3. Smart-E Channels

Smart-E Loan Channels	Closed	% of Loans
Home Performance	167	9%
HVAC	1,141	65%
Solar	390	22%
EV	2	0%
Blank	62	4%
Total	**1,762**	**100%**

Table 4. Smart-E Special Offers

Smart-E Loan Special Offers	Target	Closed	% of Goal	% of Special Offers
Bundle	299	686	229%	53%
Natural Gas	19	379	1995%	29%
Heat Pump	56	220	393%	17%
Total Special Offers	**374**	**1,285**	**344%**	**100%**
Standard Offer	66	477	723%	
Total Offers	**440**	**1,762**	**400%**	

Commercial, Industrial, & Institutional Sector

The Commercial, Industrial, & Institutional Sector continues to see growth while the Green Bank staff continues to build a pipeline of projects. The C-PACE program exceeded their project goals for the first time in program history. C-PACE closed 66 projects, exceeding their target by 15 projects, while the amount of capital deployed was $26,755,606, exceeding their target by approximately $2.3 million. The discrepancy between the project and capital progress is due to continuing decline in average project size. Meeting these goals were due to both a stronger CGB pipeline and strong year for third-party lenders.

The Commercial Lease products, CT Solar Lease III and Onyx, slightly underperformed their joint Projects Target (at 88%) and more meaningfully underperformed their Capital and Capacity Targets (at only 56%). At a high level, this underperformance is due to the fact that approximately 5 MW of projects for the Connecticut State College and University system – valued at about $10 million – were delayed due to recently concluded negotiations with the projects' investor around the use of the Special Capital Reserve Fund to support the bonds issued to finance the projects. Those projects will now be getting underway and will instead show up as part of the sector's FY19 results.

The Green Bank staff has continued to work with Eversource, UI, capital providers and the Energy Efficiency Board to move forward on the recapitalization of the Small Business Energy Advantage

Program (SBEA). In April 2018, the Green Bank, utilities and EEB agreed to issue a new RFP to solicit proposals from capital providers. Amalgamated Bank was selected as the winning bidder, and Green Bank staff will continue working with all stakeholders to achieve recapitalization of the SBEA Program by the 3rd Quarter of CY18.

Table 5. Commercial and Industrial FY 2018 Progress to Targets

	Projects			Capital Deployed			Capacity		
Product/Program	Closed	Target	% to Target	Closed	Target	% to Target	Closed	Target	% to Target
CPACE	66	51	129%	$26,755,606	$24,400,000	110%	7.3	6.4	114%
Commercial Lease	22	25	88%	$10,271,335	$15,000,000	68%	3.5	6.3	56%
CI&I Total	**78**	**67**	**116%**	**$33,021,901**	**$34,000,000**	**97%**	**9.5**	**10.4**	**92%**

Strategic Investments

The Green Bank staff continues to work on a strategic fuel cell project expected to close this year on target with forecasts.

CGB Total

Table 6. CGB FY 2018 Progress to Targets

	Projects			Capital Deployed			Capacity		
Sector	Closed	Target	% to Target	Closed	Target	% to Target	Closed	Target	% to Target
Infrastructure Sector	5,971	4,431	135%	$181,734,456	$136,300,000	133%	48.8	37.0	132%
Residential Sector	2,392	1,926	124%	$71,387,321	$47,567,394	150%	7.8	6.2	126%
Commercial, Industrial and Institutional Sector	78	67	116%	$33,021,901	$34,000,000	97%	9.5	10.4	92%
Other Strategic Investments	0	1	0%	$0	$15,000,000	0%	0.0	3.7	0%
CGB Total	**7,364**	**5,566**	**132%**	**$254,563,228**	**$211,296,752**	**120%**	**57.8**	**48.6**	**119%**

** CGB Total excludes duplicates for RSIP records using residential financing product, residential low income (Posigen) records from RSIP and commercial solar lease records using CPACE.*

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	Projects	
Sector	Closed	Target
Infrastructure Sector	5,971	4,431
Residential Sector	2,392	1,926
Commercial, Industrial and Institutional Sector	78	67
Other Strategic Investments	0	1
CGB Total	**7,364**	**5,566**

BOARD OF DIRECTORS

REGULAR MEETING SCHEDULE FOR 2019

The following is a list of dates and times for **regular meetings** of the Connecticut Green Bank Board of Directors through 2019.

- Friday, February 22, 2019 – Regular Meeting from 9:00 to 11:00 a.m.
- Friday, April 26, 2019 – Regular Meeting from 9:00 to 11:00 a.m.
- Friday, June 28, 2019 – Regular Meeting from 9:00 to 11:00 a.m.
- Friday, July 26, 2019 – Regular Meeting from 9:00 to 11:00 a.m.
- Friday, October 25, 2019 – Regular Meeting from 9:00 to 11:00 a.m.
- Friday, December 20, 2019 – Regular Meeting from 9:00 to 11:00 a.m.

Should a **special meeting** need to be convened for the Connecticut Green Bank board of Directors to review staff proposals or to address other issues that arise, a meeting will be scheduled accordingly.

All regular and special meetings will take place at the:

Connecticut Green Bank
845 Brook Street, Building #2
Albert Pope Board Room
Rocky Hill, CT 06067

AUDIT, COMPLIANCE AND GOVERNANCE COMMITTEE

REGULAR MEETING SCHEDULE FOR 2019

The following is a list of dates and times for **regular meetings** of the Connecticut Green Bank Audit, Compliance and Governance Committee through 2019.

- Wednesday, May 22, 2019 – Regular Meeting from 9:30am - 10:30am
- Thursday, October 10, 2019 – Regular Meeting from 8:30am - 9:30am

Should a **special meeting** need to be convened for the Connecticut Green Bank board of Directors to review staff proposals or to address other issues that arise, a meeting will be scheduled accordingly.

All regular meetings will take place at:

Connecticut Green Bank
845 Brook Street, Building #2
Albert Pope Board Room
Rocky Hill, CT 06067

BUDGET AND OPERATIONS COMMITTEE

REGULAR MEETING SCHEDULE FOR 2019

The following is a list of dates and times for **regular meetings** of the Connecticut Green Bank Budget and Operations Committee through 2019.

- Wednesday, May 15, 2019 – Regular Meeting from 2:00 to 3:30 p.m.
- Wednesday, June 5, 2019 – Regular Meeting from 2:00 to 3:30 p.m.

Should a **special meeting** need to be convened for the Connecticut Green Bank board of Directors to review staff proposals or to address other issues that arise, a meeting will be scheduled accordingly.

All regular meetings will take place at:

Connecticut Green Bank
845 Brook Street, Building #2
Albert Pope Board Room
Rocky Hill, CT 06067

DEPLOYMENT COMMITTEE

REGULAR MEETING SCHEDULE FOR 2019

The following is a list of dates and times for **regular meetings** of the Connecticut Green Bank Deployment Committee through 2019.

- Wednesday, March 27, 2019 – Regular Meeting from 2:00pm – 3:00pm
- Wednesday, May 29, 2019 – Regular Meeting from 2:00pm – 3:00pm
- Wednesday, September 25, 2019 – Regular Meeting from 2:00pm – 3:00pm
- Wednesday, November 20, 2019 – Regular Meeting from 2:00pm – 3:00pm

Should a **special meeting** need to be convened for the Connecticut Green Bank board of Directors to review staff proposals or to address other issues that arise, a meeting will be scheduled accordingly.

All regular meetings will take place at:

Connecticut Green Bank
845 Brook Street, Building #2
Albert Pope Board Room
Rocky Hill, CT 06067

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

CONNECTICUT GREEN BANK

Memo

To: Audit, Compliance and Governance Committee

From: Eric Shrago, Director of Operations

Date: October 3, 2018

Re: Tax Revenue Contribution Estimate Measurement Methodology

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Describing the contributions of the projects supported by the Connecticut Green Bank to the economy helps illustrate the how the continued deployment of clean energy and thus the Green Bank helps society. Estimation of the tax revenue generated by the projects supported by the Green Bank is a new part of the Societal Impact section of the Evaluation Framework.

Earlier this year, the Green Bank engaged Navigant Consulting to conduct a study and develop a model for estimating the taxes generated by Green Bank supported projects. The study was built off of the 2016 refreshed Jobs Study commissioned by the Green Bank and the Connecticut Department of Economic and Community Development. The model estimates personal and corporate income taxes as well as sales and use taxes based on the jobs created and financial structures of projects. The study and the resulting tax calculator have been reviewed by the CT Department of Revenue Services (DRS), who have found this to be an acceptable and reasonable tool for estimating this tax revenue.

Resolution

RESOLVED, that the Audit, Compliance and Governance Committee hereby recommends to the Board of Directors for approval on its consent agenda the proposed Tax Calculator for the Evaluation and Measurement of the tax revenue generated by Green Bank supported projects

TAX REVENUE CALCULATOR

FINAL REPORT

MARCH 28, 2018

199719

CONNECTICUT GREEN BANK SM

NAVIGANT

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NAVIGANT

OUTLINE

I. Background
II. Assumptions
III. Drivers of tax revenue
IV. Methodology
V. Results
VI. Sources
VII. Technology dashboards

BACKGROUND:
GOAL OF PROJECT

The Connecticut Green Bank asked Navigant to assist with measuring economic impacts other than job creation, starting with tax revenue generation.

Create a tax revenue calculator to determine the taxes generated for the State of Connecticut as a result of co-investment by CGB in RE and EE projects. Specifically:

- Estimate the individual income tax, corporate income tax, and sales tax
- Calculate taxes generated per $1 million invested
- Provide taxes generated per $1 million invested for each technology agreed upon

Our understanding is the results of the tax revenue calculator can further help CGB as it relates to presentation of quantified benefits to the state legislature and others.

BACKGROUND: TECHNOLOGIES INCLUDED

All of the RE and EE technologies that were part of the Jobs Calculator were included in the Tax Revenue Calculator with the addition of Anaerobic Digestion and CHP.

Renewable Energy	
Fuel Cell	R&D/Engineering[1]
	Installation and Manufacturing[2]
Solar PV	Residential Installation
	Non Residential Installation
Renewable Thermal Technologies	Ductless Split Heat Pump
	Geothermal Installation
	Solar Thermal Installation
Other	Wind Installation
	Hydro Installation
	EV Charging Stations Installation
	Storage Installation
	Anaerobic Digestion[1,2]
	CHP[2]

Energy Efficiency	
Residential (Single and Multi-Family)	Lighting
	Home Energy Solutions (HES) – Audits
	HES – Weatherization & HVAC
	Gas Conversion
Commercial	Small Business Energy Advantage
	Large Commercial and Industrial

Notes:
1. Assumed not yet profitable
2. New technology versus jobs calculator

ASSUMPTIONS:
INDIVIDUAL AND CORPORATE INCOME TAXES

Various assumptions were necessary to estimate the return from taxable income in the state.

- Individual Income Tax
  - All jobs are located in Connecticut and everyone is paying taxes as single filers
  - Jobs receiving individual income tax are only for installations
    - Operation jobs were not part of this analysis.
- Corporate Income Tax
  - Corporate taxable income NPV was calculated which relies on project lifetime
    - Navigant assumptions on technology/project lifetimes based on industry knowledge
    - Conducted research to estimate current technology/project costs
  - Sponsor equity investor, tax equity investors, and banks for projects located in Connecticut pay Connecticut taxes
  - Sponsor equity investor typically only cover about 10% of project capital cost, with the rest of the investment coming from tax equity investors and banks
  - Fuel cell R&D and anaerobic digestion assumed not to be profitable based on industry insight so there are no corporate income taxes from these two technologies
  - Fuel cell manufacturing and installation assumed not to be profitable for the installer, but still profitable for the sponsor equity investor

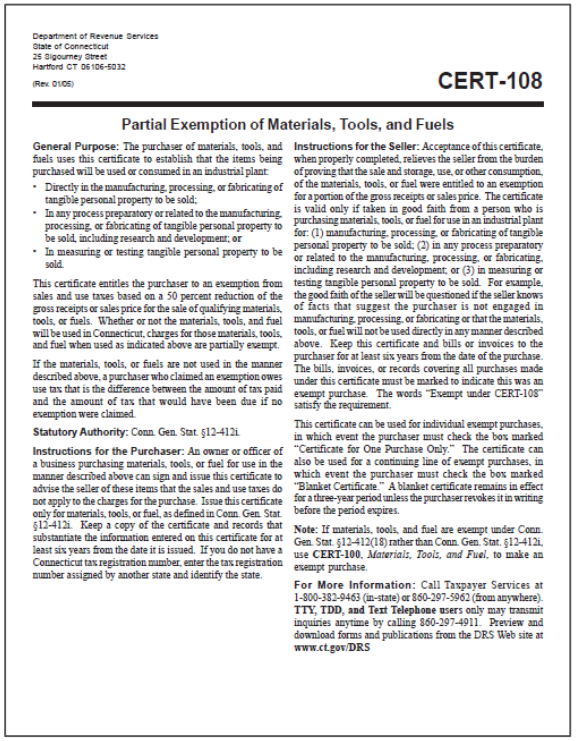
ASSUMPTIONS:
SALES AND USE TAXES

- All of the non-labor items are purchased from companies in CT or if purchased in another state, the customer pays use tax to CT
- Engineering and design labor will be split from other labor charges on the invoice since that labor is not subject to sales tax
- Exemption Certificates 108 and 109 provide a partial exemption (50%) to the non-labor portion of the fuel cell R&D/Engineering projects
- Exemption Certificate 140 applies to the following technology categories and provides for exemption of both non-labor and labor sales tax:
  - Solar PV Installations-residential, nonprofits, and C&I
  - Geothermal Installations
  - Solar Thermal Installations
- Multi-family projects are categorized with C&I projects and are not split based on the fraction of rentals that are owner-occupied compared to tenant-occupied units

ASSUMPTIONS:
SALES AND USE TAXES – EXEMPTION CERTIFICATES

We assume the applicant completes the required exemption certificates.

Exemption Certificate 108



Department of Revenue Services
State of Connecticut
25 Sigourney Street
Hartford CT 06106-5032

(Rev. 01/05)

CERT-108

Partial Exemption of Materials, Tools, and Fuels

General Purpose: The purchaser of materials, tools, and fuels uses this certificate to establish that the items being purchased will be used or consumed in an industrial plant:

- Directly in the manufacturing, processing, or fabricating of tangible personal property to be sold;
- In any process preparatory or related to the manufacturing, processing, or fabricating of tangible personal property to be sold, including research and development; or
- In measuring or testing tangible personal property to be sold.

This certificate entitles the purchaser to an exemption from sales and use taxes based on a 50 percent reduction of the gross receipts or sales price for the sale of qualifying materials, tools, or fuels. Whether or not the materials, tools, and fuel will be used in Connecticut, charges for those materials, tools, and fuel when used as indicated above are partially exempt.

If the materials, tools, or fuels are not used in the manner described above, a purchaser who claimed an exemption owes use tax that is the difference between the amount of tax paid and the amount of tax that would have been due if no exemption were claimed.

Statutory Authority: Conn. Gen. Stat. §12-412i.

Instructions for the Purchaser: An owner or officer of a business purchasing materials, tools, or fuel for use in the manner described above can sign and issue this certificate to advise the seller of these items that the sales and use taxes do not apply to the charges for the purchase. Issue this certificate only for materials, tools, or fuel, as defined in Conn. Gen. Stat. §12-412i. Keep a copy of the certificate and records that substantiate the information entered on this certificate for at least six years from the date it is issued. If you do not have a Connecticut tax registration number, enter the tax registration number assigned by another state and identify the state.

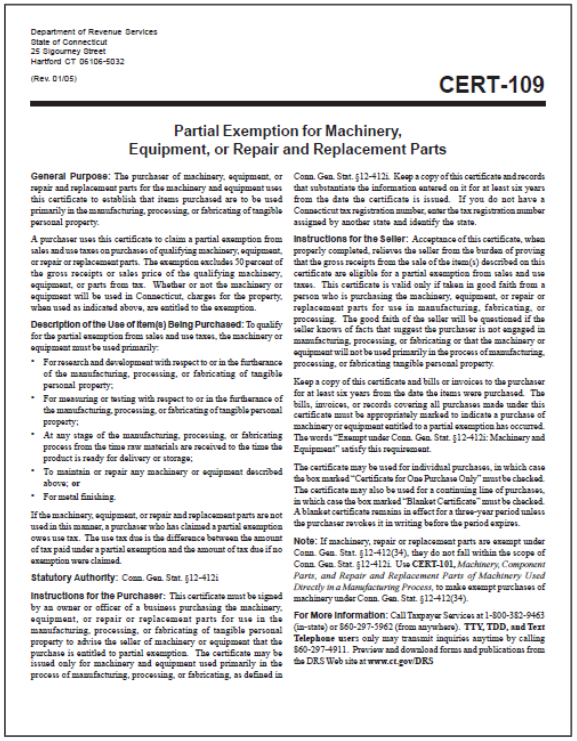
Instructions for the Seller: Acceptance of this certificate, when properly completed, relieves the seller from the burden of proving that the sale and storage, use, or other consumption, of the materials, tools, or fuel were entitled to an exemption for a portion of the gross receipts or sales price. The certificate is valid only if taken in good faith from a person who is purchasing materials, tools, or fuel for use in an industrial plant for: (1) manufacturing, processing, or fabricating of tangible personal property to be sold; (2) in any process preparatory or related to the manufacturing, processing, or fabricating, including research and development; or (3) in measuring or testing tangible personal property to be sold. For example, the good faith of the seller will be questioned if the seller knows of facts that suggest the purchaser is not engaged in manufacturing, processing, or fabricating or that the materials, tools, or fuel will not be used directly in any manner described above. Keep this certificate and bills or invoices to the purchaser for at least six years from the date of the purchase. The bills, invoices, or records covering all purchases made under this certificate must be marked to indicate this was an exempt purchase. The words "Exempt under CERT-108" satisfy the requirement.

This certificate can be used for individual exempt purchases, in which event the purchaser must check the box marked "Certificate for One Purchase Only." The certificate can also be used for a continuing line of exempt purchases, in which event the purchaser must check the box marked "Blanket Certificate." A blanket certificate remains in effect for a three-year period unless the purchaser revokes it in writing before the period expires.

Note: If materials, tools, and fuel are exempt under Conn. Gen. Stat. §12-412(18) rather than Conn. Gen. Stat. §12-412i, use **CERT-100**, *Materials, Tools, and Fuel*, to make an exempt purchase.

For More Information: Call Taxpayer Services at 1-800-382-9463 (in-state) or 860-297-5962 (from anywhere). **TTY, TDD, and Text Telephone users** only may transmit inquiries anytime by calling 860-297-4911. Preview and download forms and publications from the DRS Web site at **www.ct.gov/DRS**

Exemption Certificate 109



Department of Revenue Services
State of Connecticut
25 Sigourney Street
Hartford CT 06106-5032

(Rev. 01/05)

CERT-109

Partial Exemption for Machinery, Equipment, or Repair and Replacement Parts

General Purpose: The purchaser of machinery, equipment, or repair and replacement parts for the machinery and equipment uses this certificate to establish that items purchased are to be used primarily in the manufacturing, processing, or fabricating of tangible personal property.

A purchaser uses this certificate to claim a partial exemption from sales and use taxes on purchases of qualifying machinery, equipment, or repair or replacement parts. The exemption excludes 50 percent of the gross receipts or sales price of the qualifying machinery, equipment, or parts from tax. Whether or not the machinery or equipment will be used in Connecticut, charges for the property, when used as indicated above, are entitled to the exemption.

Description of the Use of Item(s) Being Purchased: To qualify for the partial exemption from sales and use taxes, the machinery or equipment must be used primarily:

- For research and development with respect to or in the furtherance of the manufacturing, processing, or fabricating of tangible personal property;
- For measuring or testing with respect to or in the furtherance of the manufacturing, processing, or fabricating of tangible personal property;
- At any stage of the manufacturing, processing, or fabricating process from the time raw materials are received to the time the product is ready for delivery or storage;
- To maintain or repair any machinery or equipment described above; or
- For metal finishing.

If the machinery, equipment, or repair and replacement parts are not used in this manner, a purchaser who has claimed a partial exemption owes use tax. The use tax due is the difference between the amount of tax paid under a partial exemption and the amount of tax due if no exemption were claimed.

Statutory Authority: Conn. Gen. Stat. §12-412i

Instructions for the Purchaser: This certificate must be signed by an owner or officer of a business purchasing the machinery, equipment, or repair or replacement parts for use in the manufacturing, processing, or fabricating of tangible personal property to advise the seller of machinery or equipment that the purchase is entitled to partial exemption. The certificate may be issued only for machinery and equipment used primarily in the process of manufacturing, processing, or fabricating, as defined in Conn. Gen. Stat. §12-412i. Keep a copy of this certificate and records that substantiate the information entered on it for at least six years from the date the certificate is issued. If you do not have a Connecticut tax registration number, enter the tax registration number assigned by another state and identify the state.

Instructions for the Seller: Acceptance of this certificate, when properly completed, relieves the seller from the burden of proving that the gross receipts from the sale of the item(s) described on this certificate are eligible for a partial exemption from sales and use taxes. This certificate is valid only if taken in good faith from a person who is purchasing the machinery, equipment, or repair or replacement parts for use in manufacturing, fabricating, or processing. The good faith of the seller will be questioned if the seller knows of facts that suggest the purchaser is not engaged in manufacturing, processing, or fabricating or that the machinery or equipment will not be used primarily in the process of manufacturing, processing, or fabricating tangible personal property.

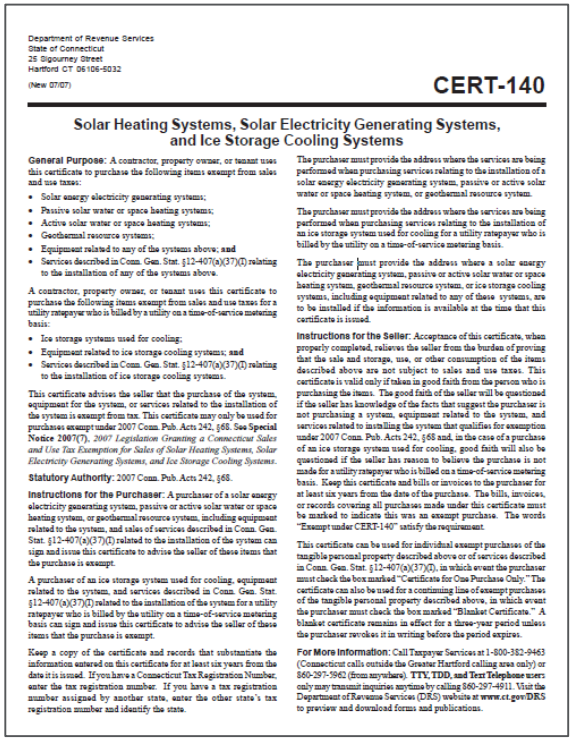
Keep a copy of this certificate and bills or invoices to the purchaser for at least six years from the date the items were purchased. The bills, invoices, or records covering all purchases made under this certificate must be appropriately marked to indicate a purchase of machinery or equipment entitled to a partial exemption has occurred. The words "Exempt under Conn. Gen. Stat. §12-412i: Machinery and Equipment" satisfy this requirement.

The certificate may be used for individual purchases, in which case the box marked "Certificate for One Purchase Only" must be checked. The certificate may also be used for a continuing line of purchases, in which case the box marked "Blanket Certificate" must be checked. A blanket certificate remains in effect for a three-year period unless the purchaser revokes it in writing before the period expires.

Note: If machinery, repair or replacement parts are exempt under Conn. Gen. Stat. §12-412(34), they do not fall within the scope of Conn. Gen. Stat. §12-412i. Use **CERT-101**, *Machinery, Component Parts, and Repair and Replacement Parts of Machinery Used Directly in a Manufacturing Process*, to make exempt purchases of machinery under Conn. Gen. Stat. §12-412(34).

For More Information: Call Taxpayer Services at 1-800-382-9463 (in-state) or 860-297-5962 (from anywhere). **TTY, TDD, and Text Telephone users** only may transmit inquiries anytime by calling 860-297-4911. Preview and download forms and publications from the DRS Web site at **www.ct.gov/DRS**

Exemption Certificate 140



Department of Revenue Services
State of Connecticut
25 Sigourney Street
Hartford CT 06106-5032

(New 07/07)

CERT-140

Solar Heating Systems, Solar Electricity Generating Systems, and Ice Storage Cooling Systems

General Purpose: A contractor, property owner, or tenant uses this certificate to purchase the following items exempt from sales and use taxes:

- Solar energy electricity generating systems;
- Passive solar water or space heating systems;
- Active solar water or space heating systems;
- Geothermal resource systems;
- Equipment related to any of the systems above; and
- Services described in Conn. Gen. Stat. §12-407(a)(37)(I) relating to the installation of any of the systems above.

A contractor, property owner, or tenant uses this certificate to purchase the following items exempt from sales and use taxes for a utility ratepayer who is billed by a utility on a time-of-service metering basis:

- Ice storage systems used for cooling;
- Equipment related to ice storage cooling systems; and
- Services described in Conn. Gen. Stat. §12-407(a)(37)(I) relating to the installation of ice storage cooling systems.

This certificate advises the seller that the purchase of the system, equipment for the system, or services related to the installation of the system is exempt from tax. This certificate may only be used for purchases exempt under 2007 Conn. Pub. Acts 242, §68. See **Special Notice 2007(7)**, *2007 Legislation Granting a Connecticut Sales and Use Tax Exemption for Sales of Solar Heating Systems, Solar Electricity Generating Systems, and Ice Storage Cooling Systems.*

Statutory Authority: 2007 Conn. Pub. Acts 242, §68.

Instructions for the Purchaser: A purchaser of a solar energy electricity generating system, passive or active solar water or space heating system, or geothermal resource system, including equipment related to the system, and sales of services described in Conn. Gen. Stat. §12-407(a)(37)(I) related to the installation of the system can sign and issue this certificate to advise the seller of these items that the purchase is exempt.

A purchaser of an ice storage system used for cooling, equipment related to the system, and services described in Conn. Gen. Stat. §12-407(a)(37)(I) related to the installation of the system for a utility ratepayer who is billed by the utility on a time-of-service metering basis can sign and issue this certificate to advise the seller of these items that the purchase is exempt.

Keep a copy of the certificate and records that substantiate the information entered on this certificate for at least six years from the date it is issued. If you have a Connecticut Tax Registration Number, enter the tax registration number. If you have a tax registration number assigned by another state, enter the other state's tax registration number and identify the state.

The purchaser must provide the address where the services are being performed when purchasing services relating to the installation of a solar energy electricity generating system, passive or active solar water or space heating system, or geothermal resource system.

The purchaser must provide the address where the services are being performed when purchasing services relating to the installation of an ice storage system used for cooling for a utility ratepayer who is billed by the utility on a time-of-service metering basis.

The purchaser must provide the address where a solar energy electricity generating system, passive or active solar water or space heating system, geothermal resource system, or ice storage cooling systems, including equipment related to any of these systems, are to be installed if the information is available at the time that this certificate is issued.

Instructions for the Seller: Acceptance of this certificate, when properly completed, relieves the seller from the burden of proving that the sale and storage, use, or other consumption of the items described above are not subject to sales and use taxes. This certificate is valid only if taken in good faith from the person who is purchasing the items. The good faith of the seller will be questioned if the seller has knowledge of the facts that suggest the purchaser is not purchasing a system, equipment related to the system, and services related to installing the system that qualifies for exemption under 2007 Conn. Pub. Acts 242, §68 and, in the case of a purchase of an ice storage system used for cooling, good faith will also be questioned if the seller has reason to believe the purchase is not made for a utility ratepayer who is billed on a time-of-service metering basis. Keep this certificate and bills or invoices to the purchaser for at least six years from the date of the purchase. The bills, invoices, or records covering all purchases made under this certificate must be marked to indicate this was an exempt purchase. The words "Exempt under CERT-140" satisfy the requirement.

This certificate can be used for individual exempt purchases of the tangible personal property described above or of services described in Conn. Gen. Stat. §12-407(a)(37)(I), in which event the purchaser must check the box marked "Certificate for One Purchase Only." The certificate can also be used for a continuing line of exempt purchases of the tangible personal property described above, in which event the purchaser must check the box marked "Blanket Certificate." A blanket certificate remains in effect for a three-year period unless the purchaser revokes it in writing before the period expires.

For More Information: Call Taxpayer Services at 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) or 860-297-5962 (from anywhere). **TTY, TDD, and Text Telephone users** only may transmit inquiries anytime by calling 860-297-4911. Visit the Department of Revenue Services (DRS) website at **www.ct.gov/DRS** to preview and download forms and publications.

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ASSUMPTIONS:
ECONOMIC NEXUS WITH CT

- Navigant assumed that for all companies involved, they would pay CT income tax for their portion of the project income
- This is based on the how CT defines economic nexus:

  "Effective for tax years beginning on or after January 1, 2010, any companies, partnerships, and S corporations that derive income from Connecticut or have a substantial economic presence within Connecticut, in either case attributable to the purposeful direction of business activities toward Connecticut, will be subject to tax in Connecticut"

  http://www.ct.gov/drs/cwp/view.asp?A=1510&Q=470710
- **Economic nexus by commercial entity:**
  - Host: Employees and business located in CT
  - Installer/EPC: Employees in CT or derives income from CT
  - For-profit or not-for-profit bank: either located in CT or derives income from CT
  - Tax-equity investor: derives income from CT
  - Sponsor-equity investor: derives income from CT

METHODOLOGY:
INDIVIDUAL INCOME TAX

Starting with jobs calculator:

1. Individual Income Tax

a. Direct Jobs

[Number of job-years created] x [weighted average wage] x [income tax rate]
2016 Jobs Calculator *2016 Jobs Calculator* *CT DRS Tax Calculator*

b. Indirect/Induced Jobs

[Number of job-years created] x [weighted average wage] x [income tax rate]
2016 Jobs Calculator *NREL JEDI Model* *CT DRS Tax Calculator*

Legend:
[Item]
Source

METHODOLOGY:
CORPORATE INCOME TAX

2. Corporate Income Tax

[Sum of taxable income] x [corporate tax rate]
From parties below *CT Tax Rates*

a. Determine all potential parties:

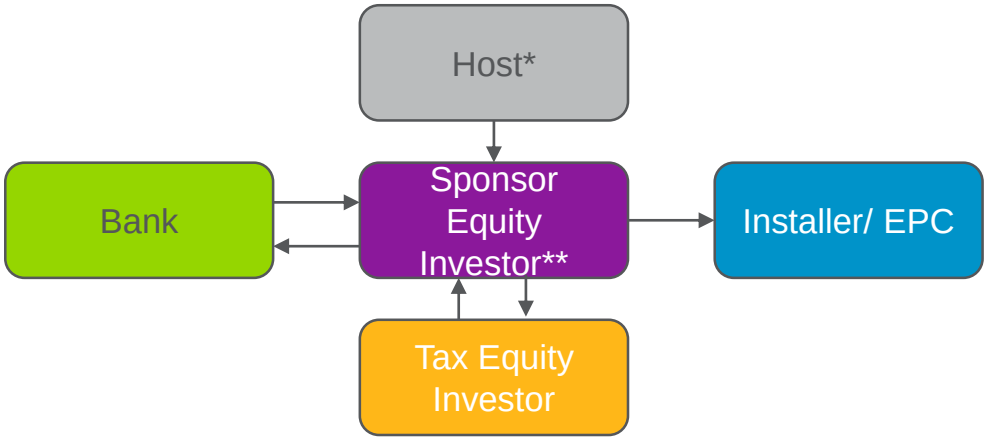
- **Installer/EPC** – taxable income from technology installation/sales
- **Sponsor Equity Investor** – taxable income from a portion of project distributions
- **For-Profit Bank** – taxable income from loan proceeds over useful life
- **Host** – taxable income from buying power for cheaper (NPV of change in profit)
- **Tax Equity Investor** – taxable income from a portion of project distributions + tax benefits

Legend:
[Item]
Source

METHODOLOGY:
CORPORATE INCOME TAX

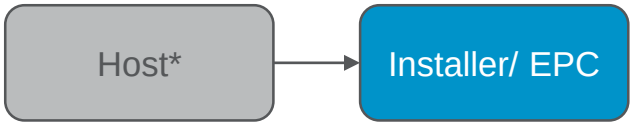
Multiple schemes possible based on project type/technology. Top three:

a.) Lease/PPA
(e.g., solar, wind or hydro projects)



b.) Loan Program
(e.g., ductless split heat pump, CHP)

c.) Residential EE Programs
(e.g., lighting, HES Audits)



* Changes to host taxable income only in some scenarios
** Sponsor Equity Investor and Installer/EPC sometimes same entity (e.g., SolarCity)

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HISTORY OF CORPORATE INCOME TAX EXEMPTIONS FOR ALTERNATIVE ENERGY COMPANIES IN CT

- In 1984 the following ruling was passed: Conn. Agencies Regs. Sec. 12-214-2. Companies exempt from tax.
  - “(8) "Individually owned company which had gross annual revenues not in excess of one hundred million dollars in the most recently completed year; which engaged in the research, design, manufacture, sale or installation of alternative energy systems;...”
- Based on research by the CT GB and Navigant, this exemption was repealed in 1999 and the current exemptions do not include alternative energy companies:
  - Insurance companies
  - Companies exempt by the federal corporation net income tax law
  - Domestic International Sales Corporations electing to be treated as a DISC under the I.R.C.
  - Companies subject to gross earnings taxes under Chapter 210
  - Cooperative housing corporations as defined for federal tax purposes
  - Corporate limited partners in one or more investment partnerships that are not otherwise doing business in Connecticut
  - Non-U.S. corporations whose sole activity in Connecticut is trading in stocks, securities or commodities for their own account. Certain political organizations exempt under I.R.C. §527 filing federal Form 1120-POL
  - Homeowners Associations filing federal Form 1120-H
  - Financial service companies whose corporate headquarters are located in the export zone in the City of Hartford and conduct all of their business outside the United States
  - Passive investment companies (PICs), defined under Conn. Gen. Stat. §12-213(a)(27) must file Form CT-1120 PIC in place of Form CT-1120.

NAVIGANT

3. Sales and Use Tax

Sales and use tax rate is 6.35%.

Labor

[Total direct labor cost-direct engineering/design labor cost] x [Sales tax rate]

2016 Jobs Calculator — *CT Tax Rates*

- 100% of labor is exempt for solar PV, solar thermal, and geothermal
- All residential labor is exempt for residential project types

Non-labor

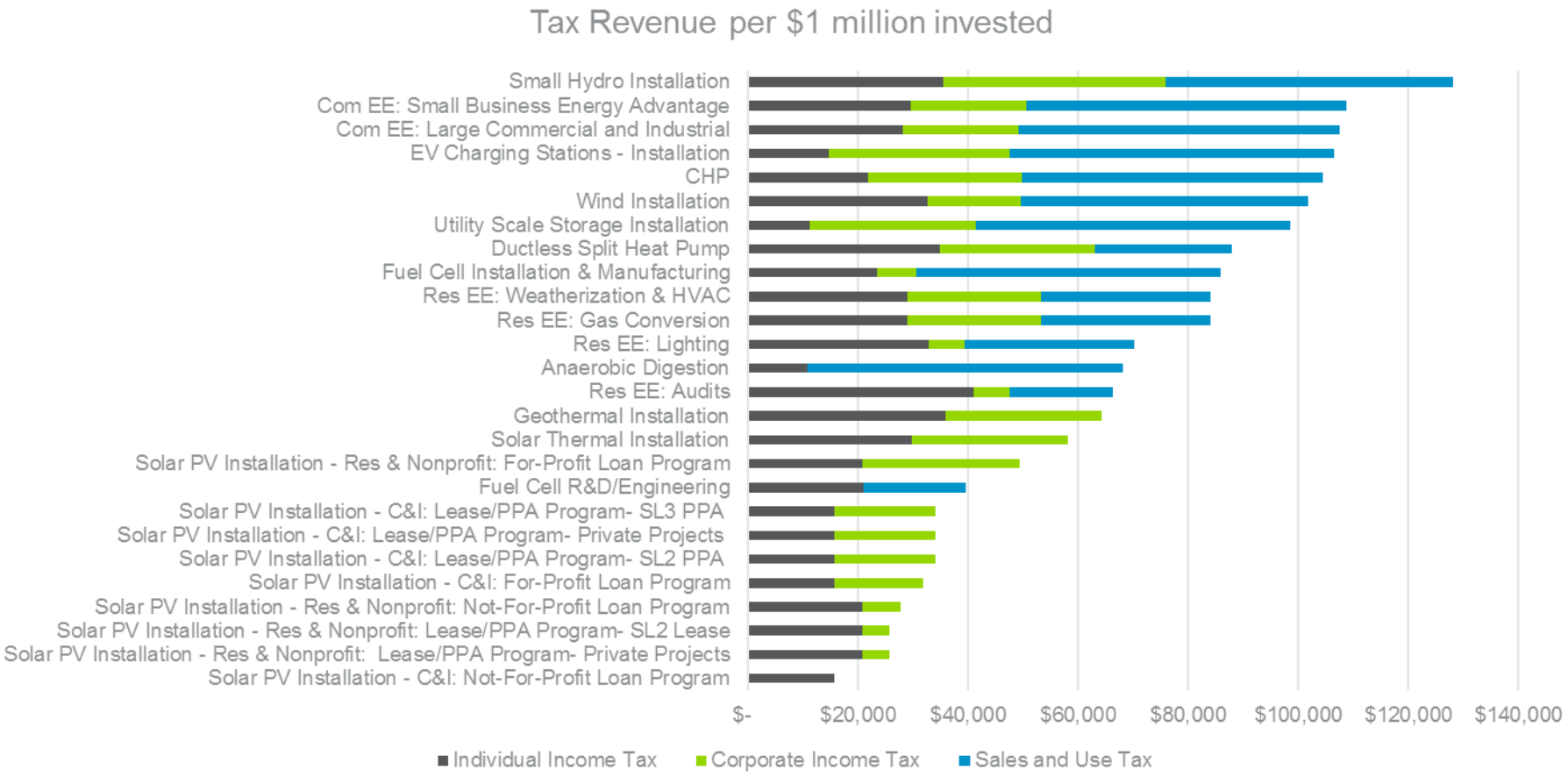
[Sum of non-labor cost] x [% of non-labor not exempt] x [Sales tax rate]

2016 Jobs Calculator — *Dependent on applicable exemption certificates* — *CT Tax Rates*

- The % of non-labor not exempt is:
  - 0% for solar PV, solar thermal, and geothermal
  - 50% for fuel cell R&D
  - 100% for all other technology types

RESULTS:
RANKED BY TOTAL TAX

Across the different project types, the total tax varies significantly, from $10,000 to $128,000 per million dollars invested.



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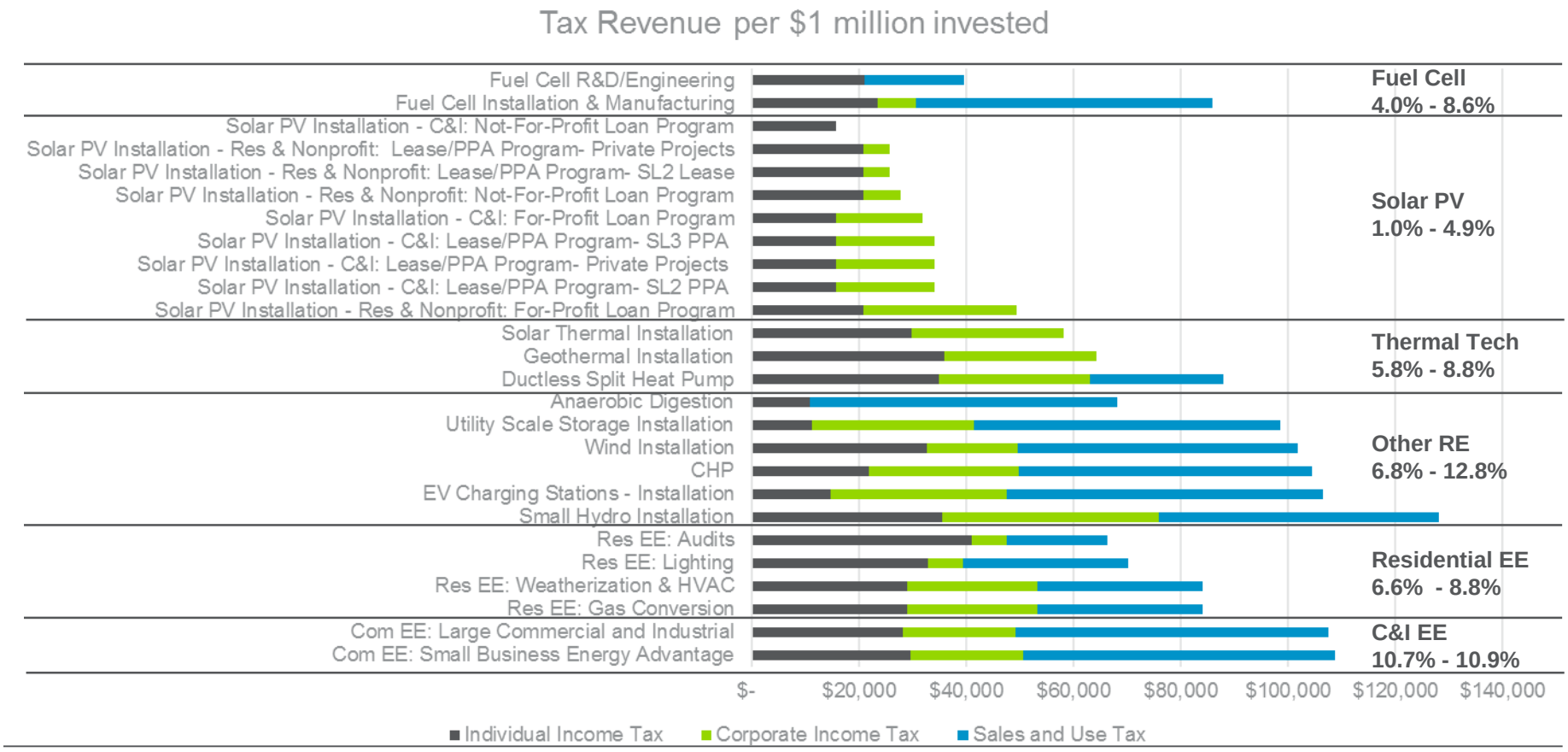
RESULTS:
SORTED BY CATEGORY AND BY TOTAL TAX

There is some spread within a technology category dependent on the project financing method and whether or not it is residential or non-residential.



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RESULTS:
RANGES BY HIGHER LEVEL TECHNOLOGY CATEGORY

Specific drivers impact the difference in tax revenue impacts between various projects and technologies.

Renewable Energy		Tax Revenue as % of project cost
Fuel Cell	All	4.0% - 8.6%
Solar PV	Residential Installation	2.6% - 4.9%
	Non Residential Installation	1.0% - 3.4%
Renewable Thermal Technologies	All	5.8% - 8.8%
Other RE	Anaerobic Digestion	6.8%
	Utility Storage Installation	9.9%
	Wind Installation	10.2%
	CHP	10.4%
	EV Charging Station Installation	10.7%
	Small Hydro Installation	12.8%
Energy Efficiency		**Tax Revenue as % of project cost**
Residential (Single & Multi-Family)	All	6.6% - 8.4%
Commercial	All	10.7% - 10.9%

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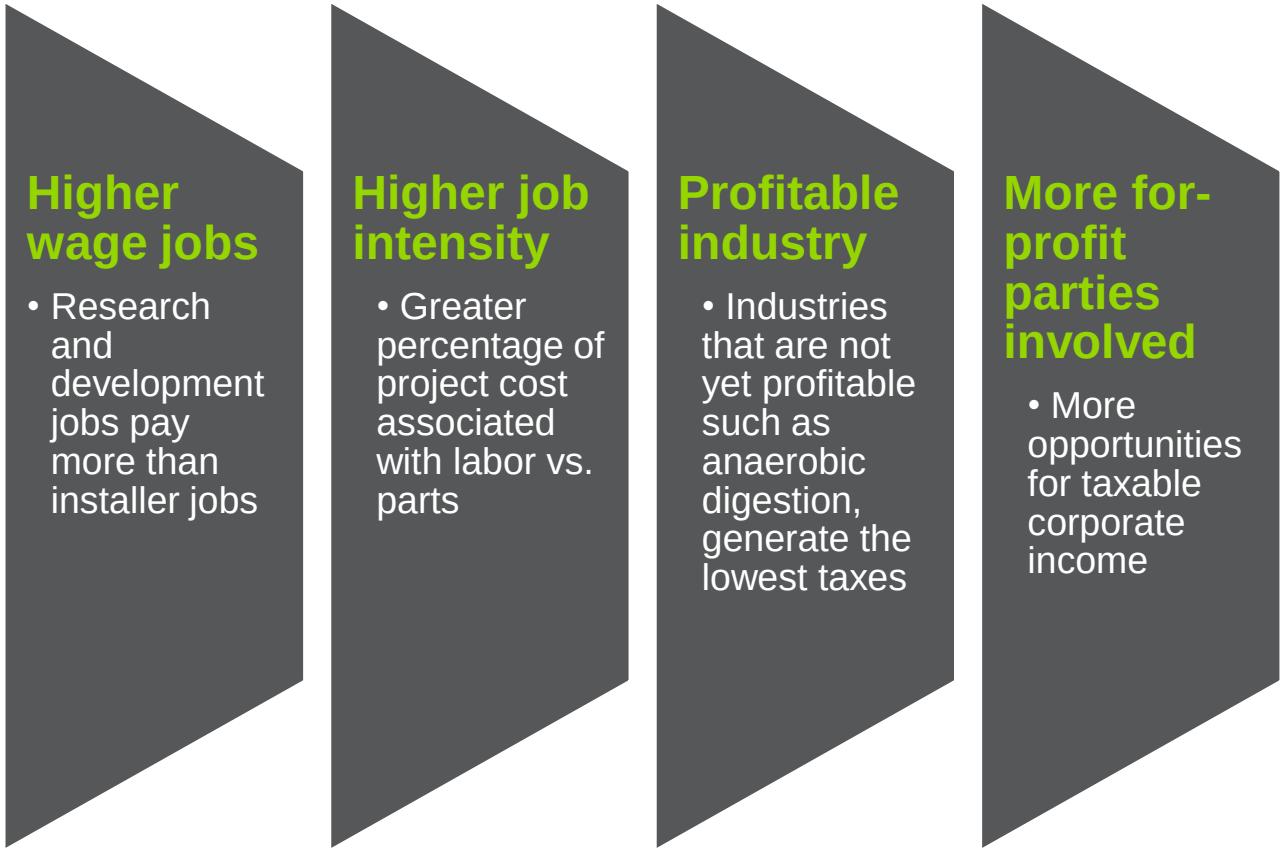
DRIVERS OF HIGHER TAX REVENUE

There are a number of drivers that lead to higher tax revenues for certain projects in the state.



NAVIGANT

SOURCES:
INDIRECT/INDUCED JOBS

Indirect and induced job wage was not part of the jobs calculator and therefore was estimated for the tax calculator analysis based on research.

1. NREL Jobs & Economic Development Impact (JEDI) models[1]
   - The models generate the number of indirect and induced jobs and the total earnings based on the project/technology type
   - The models for Conventional Hydropower and Wind specified for CT and inflated to 2016$ calculated an average indirect/induced wage on the **higher side of about $67,000-$70,000**
2. The Solar Foundation, An Assessment of the Economic, Revenue, and Societal Impacts of Colorado's Solar Industry (Oct 2013)[2]
   - The analysis reported the number of indirect and induced jobs and the total earnings for the Colorado solar industry in 2012
   - Inflating to 2016$ and increasing the wage based on the average wage in CT vs CO in 2016, the average indirect/induced wage on the **lower side of about $50,000**
3. Bureau of Labor Statistics, May 2016 State Occupational Employment and Wage Estimates[3]
   - Based on the average report wage of $57,960 across the state of CT in 2016 according to BLS, Navigant estimate an **average indirect/induced wage of $55,000 be used in the tax calculator**

- **We assume the same indirect/induced job wage across all projects/technologies**

[1] National Renewable Energy Laboratory, 01D_JEDI_CSP_Trough_Model_rel._CSP12.23.16, https://www.nrel.gov/analysis/jedi/
[2] The Solar Foundation, http://solarcommunities.org/wp-content/uploads/2013/10/TSF_COSEIA-Econ-Impact-Report_FINAL-VERSION.pdf
[3] BLS, May 2016 State Occupational Employment and Wage Estimates Connecticut, https://www.bls.gov/oes/current/oes_ct.htm

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SOURCES:
CORPORATE INCOME BEFORE TAX

- Navigant looked at financial data for publicly traded companies that perform renewable energy and energy efficiency installation/EPC services in the US over the 2014-2016 time period
- Benchmark companies included larger diversified construction companies such as Ameresco, EMCOR, MasTec, Quanta Services and Argan and some solar companies such as Vivint and SunRun
- Many of the installers/EPCs in CT are smaller companies. As such, they are privately held and financial data is not public
- The CT Green Bank also reviewed information from qualified CT Green Bank contractors and installers
- Based on this research, for the purposes of modeling corporate income tax, Navigant assumed that **income before tax (or taxable income) was equal to 9% of revenue**

SOURCES:
ONLINE REFERENCES

- CT Eversource C&I base electricity rates:
  - https://www.eversource.com/content/docs/default-source/rates-tariffs/rate30.pdf
  - https://www.eversource.com/content/docs/default-source/rates-tariffs/rate55.pdf
- Sales tax exemptions:
  - http://www.ct.gov/drs/lib/drs/forms/2005forms/certificates/cert-108.pdf
  - http://www.ct.gov/drs/lib/drs/forms/2005forms/certificates/cert-109.pdf
  - http://www.ct.gov/drs/lib/drs/forms/2007forms/salesandusetax/cert-140.pdf
  - http://www.ct.gov/drs/lib/drs/publications/pubsip/2006/ip06-35.pdf
- Percent of project cost provided by tax equity investor:
  - http://greenzu.com/solar-tax-equity-investor-returns
  - https://www.solsystems.com/invest-in-solar/tax-equity/
- Renewable energy technologies that qualified for investment tax credit in 2016:
  - http://programs.dsireusa.org/system/program/detail/658
  - http://www.bakertilly.com/services/renewable-energy/investment-tax-credit-section-48
- CT Corporate Tax Rate – 7.5%
  - http://www.ct.gov/drs/lib/drs/forms/1-2016/corporation/ct-1120.pdf
- CT Individual Income Tax Rate
  - http://www.dir.ct.gov/drs/Taxcalsched/TCS2017.htm

Wage	Individual Income Tax Rate
$ 40,000	3.5%
$ 45,000	4.1%
$ 50,000	4.1%
$ 55,000	4.2%
$ 60,000	4.3%
$ 85,000	5.1%

NAVIGANT

TECHNOLOGY DASHBOARDS

FUEL CELLS

NAVIGANT

FUEL CELL
R&D/ENGINEERING

Description:

We assumed that firms focusing on research and development or engineering work on fuel cells in CT are not yet profitable and are relying on investors for funding. As the fuel cell industry matures, fuel cell engineering or R&D firms may become profitable companies. These firms have the highest direct wage of all of the projects included in the calculator at $85,000.

Parties involved:

R&D/Engineering Frim – not profitable

Drivers:

Inputs:

Average Direct Wage	$85,000
Labor % of Project Cost	40%
Project Lifetime	10 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$20,911
Corporate Income Tax	-
Sales and Use Tax	$18,694
Tax Revenue as % of project cost	4.0%
Rank	18/26

NAVIGANT

FUEL CELL
INSTALLATION AND MANUFACTURING

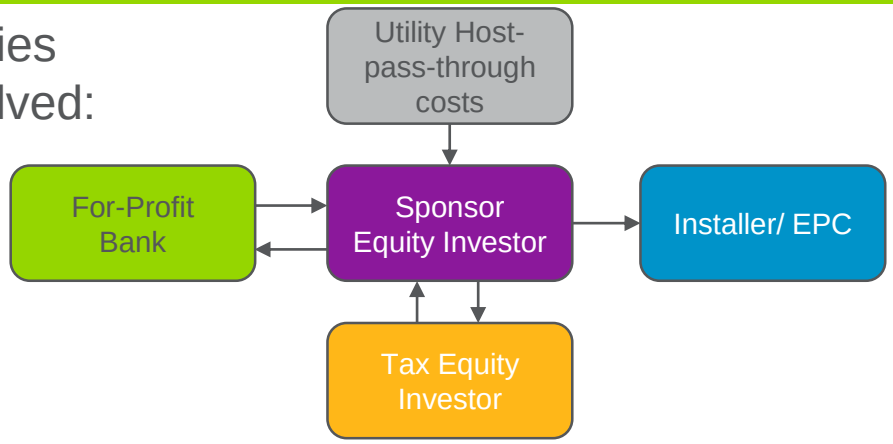
Description:

For fuel cell installation projects, we assumed there are five commercial parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, the tax equity investor, and the utility host. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital, tax equity and some debt to finance the project. The tax equity investor is paid a 4% yearly return on the investment and is bought out at 10% of the investment in year 5. The power from the fuel cell is sold to the utility host. The cost of the power is assumed to be a pass-through cost to the utility customer and does not increase profit for the utility host.

Inputs:

Average Direct Wage	$60,000
Labor % of Project Cost	40%
Project Lifetime	10 years
Average 2016 Cost	$4.87/W
Capacity Factor	90%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Parties involved:



Drivers:

Results (per $1 million invested):

Individual Income Tax	$23,489
Corporate Income Tax	$7,108
Sales and Use Tax	$55,195
Tax Revenue as % of project cost	8.6%
Rank	9/26

NAVIGANT

TECHNOLOGY DASHBOARDS

SOLAR PV

NAVIGANT

SOLAR PV – LOAN PROGRAM
FOR-PROFIT BANK, RESIDENTIAL AND NONPROFIT

Description:

When a residential or nonprofit host takes out a loan to install a solar PV project from a for-profit bank, the three parties involved are the host, the bank, and the installer/EPC. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The residential or nonprofit host benefits from not paying for power from their own panels, lowering their overall energy bills. However, since the host in this scenario doesn't pay income tax, their taxes are not impacted as a result of lower energy bills, which is the case for a C&I host. The cost per watt and the PPA price for these projects is approximately 30% higher than for C&I projects.

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	35%
Project Lifetime	25 years
Average 2016 Cost	$2.98/W
Capacity Factor	13.7%
% by Tax Equity Investor	-
Depreciation	-

Parties involved:

Drivers:

Results (per $1 million invested):

Individual Income Tax	$20,878
Corporate Income Tax	$28,387
Sales and Use Tax	-
Tax Revenue as % of project cost	4.9%
Rank	17/26

NAVIGANT

SOLAR PV – LOAN PROGRAM
FOR-PROFIT BANK, C&I

Description:

When a C&I business takes out a loan to install a solar PV project from a for-profit bank, the three parties involved are the host, the bank, and the installer/EPC. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The C&I business benefits from lower overall energy bills, leading to lower operating costs and increasing their income accordingly. However, the C&I host can deduct the interest payments and the depreciation of the panels from their increased income. We found a net negative NPV of the decreased energy bills, interest payments, and depreciation for the C&I host, lowering their income taxes.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	25%
Project Lifetime	25 years
Average 2016 Cost	$2.30/W
Capacity Factor	13.7%
% by Tax Equity Investor	-
Depreciation	5 year MACRS

Results (per $1 million invested):

Individual Income Tax	$20,641
Corporate Income Tax	$16,117
Sales and Use Tax	-
Tax Revenue as % of project cost	3.2%
Rank	22/26

NAVIGANT

SOLAR PV – LOAN PROGRAM
NOT-FOR-PROFIT BANK, RESIDENTIAL AND NONPROFIT

Description:

When a residential or nonprofit host takes out a loan to install a solar PV project from a not-for-profit bank, the three parties involved are the host, the bank, and the installer/EPC. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The not-for-profit bank does not pay taxes on the interest paid on the loan. The residential or nonprofit host benefits from not paying for power from their own panels, lowering their overall energy bills. However, since the host in this scenario doesn't pay income tax, their taxes are not impacted as a result of lower energy bills. The cost per watt and the PPA price for these projects is approximately 30% higher than for C&I projects.

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	35%
Project Lifetime	25 years
Average 2016 Cost	$2.98/W
Capacity Factor	13.7%
% by Tax Equity Investor	-
Depreciation	-

Parties involved:

Drivers:

Results (per $1 million invested):

Individual Income Tax	$20,878
Corporate Income Tax	$6,750
Sales and Use Tax	-
Tax Revenue as % of project cost	2.8%
Rank	23/26

NAVIGANT

SOLAR PV – LOAN PROGRAM
NOT-FOR-PROFIT BANK, C&I

Description:

When a C&I business takes out a loan to install a solar PV project from a not-for-profit bank, the three parties involved are the host, the bank, and the installer/EPC. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The not-for-profit bank does not pay taxes on the interest paid on the loan. The C&I business benefits from lower overall energy bills, leading to lower operating costs and increasing their income accordingly. However, the C&I host can deduct the interest payments and the depreciation of the panels from their increased income. We found a net negative NPV of the decreased energy bills, interest payments, and depreciation for the C&I host, lowering their income taxes.

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	25%
Project Lifetime	25 years
Average 2016 Cost	$2.30/W
Capacity Factor	13.7%
% by Tax Equity Investor	-
Depreciation	5 year MACRS

Parties involved:

Drivers:

Results (per $1 million invested):

Individual Income Tax	$15,641
Corporate Income Tax	-$5,250
Sales and Use Tax	-
Tax Revenue as % of project cost	1.0%
Rank	26/26

NAVIGANT

SOLAR PV – LEASE/PPA PROGRAM
PRIVATE PROJECTS, RESIDENTIAL AND NONPROFIT

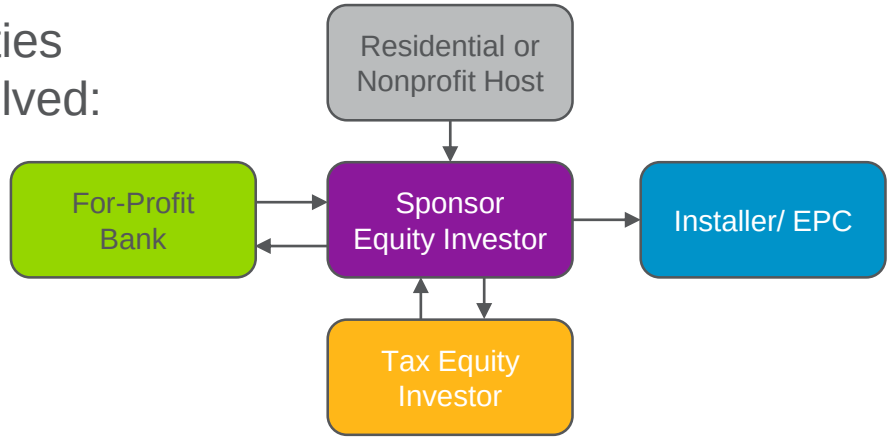
Description:

For a residential or nonprofit private lease/PPA solar PV project, we assumed that there are five parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, the tax equity investor, and the residential or nonprofit host. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital, tax equity and some debt to finance the project. The tax equity investor is paid a 4% yearly return on the investment and is bought out at 10% of the investment in year 5. The residential or nonprofit host benefits from a lower energy price than if they purchased the power from the utility directly. However, since the host doesn't pay income tax, their taxes are not impacted as a result of lower energy bills.

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	35%
Project Lifetime	20 years
Average 2016 Cost	$2.98/W
Capacity Factor	13.7%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Parties involved:



Drivers:

Results (per $1 million invested):

Individual Income Tax	$20,878
Corporate Income Tax	$4,874
Sales and Use Tax	-
Tax Revenue as % of project cost	2.6%
Rank	25/26

NAVIGANT

SOLAR PV – LEASE/PPA PROGRAM
PRIVATE PROJECTS, C&I

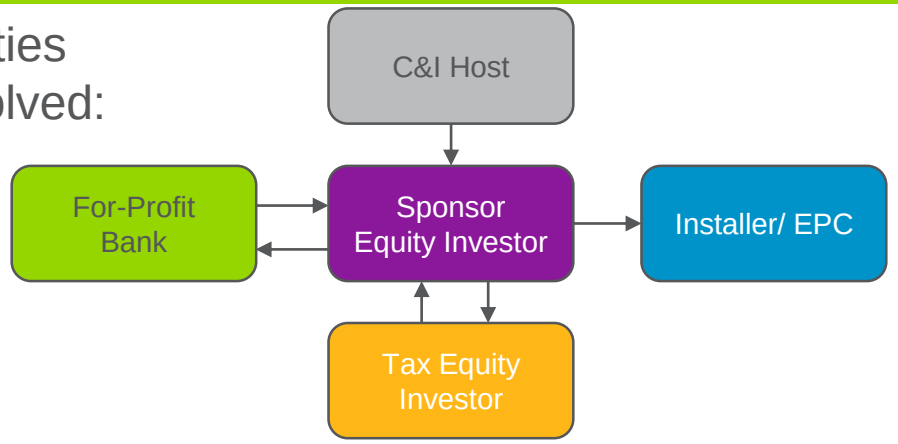
Description:

For a C&I private lease/PPA solar PV project, we assumed that there are five parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, the tax equity investor, and the C&I host. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital, tax equity and some debt to finance the project. The tax equity investor is paid a 4% yearly return on the investment and is bought out at 10% of the investment in year 5. The C&I host benefits from a lower energy price than if they purchased the power from the utility directly, leading to increased taxable income for the C&I host over the lease/PPA term.

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	25%
Project Lifetime	20 years
Average 2016 Cost	$2.30/W
Capacity Factor	13.7%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Parties involved:



Drivers:

Results (per $1 million invested):

Individual Income Tax	$15,641
Corporate Income Tax	$18,417
Sales and Use Tax	-
Tax Revenue as % of project cost	3.4%
Rank	20/26

NAVIGANT

SOLAR PV – LEASE/PPA PROGRAM
CT GREEN BANK SL2 PROJECTS, RESIDENTIAL AND NONPROFIT

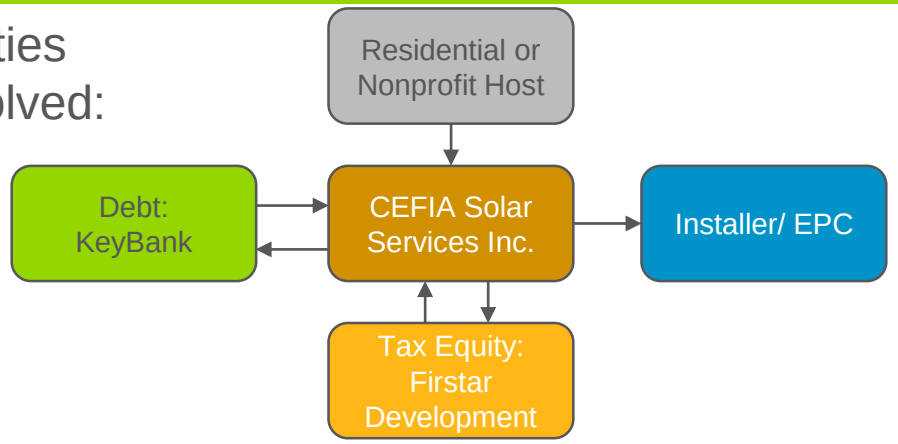
Description:

CT GB created CEFIA Solar Services Inc. to act as the managing member of their SL2 solar PV leases. CEFIA Solar Services Inc. provides a 26% share, the tax equity investor, Firstar Development, provides 35%, and KeyBank provides the remaining. Firstar Development receives a yearly priority return of approximately 2.9% of capital contributed considering the unfunded commitment fee and is bought out at 10% of the investment in year 5. The residential or nonprofit host benefits from a lower energy price than if they purchasing from the utility. However, since the host doesn't pay income tax, their taxes are not impacted. The cost per watt and the lease/PPA price is approximately 30% higher than for C&I projects.

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	35%
Project Lifetime	20 years
Average 2016 Cost	$2.98/W
Capacity Factor	13.7%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Parties involved:



Drivers:

Results (per $1 million invested):

Individual Income Tax	$20,878
Corporate Income Tax	$4,874
Sales and Use Tax	-
Tax Revenue as % of project cost	2.6%
Rank	24/26

NAVIGANT

SOLAR PV – LEASE/PPA PROGRAM
CT GREEN BANK SL2 PROJECTS, C&I

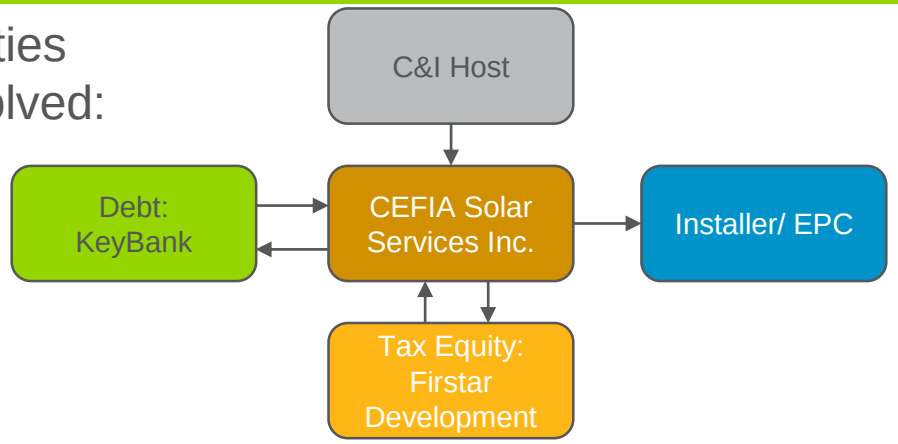
Description:

CT GB created CEFIA Solar Services Inc. to act as the managing member of their SL2 solar PV leases. CEFIA Solar Services Inc. provides a 26% share, the tax equity investor, Firstar Development, provides 35%, and the remaining amount is debt from KeyBank. Firstar Development receives a priority return of approximately 2.9% of capital contributed considering the unfunded commitment fee and is bought out at 10% of the investment in year 5. The C&I host benefits from a lower energy price than if they purchased the power from the utility directly, leading to increased taxable income for the C&I host over the lease/PPA term.

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	25%
Project Lifetime	20 years
Average 2016 Cost	$2.30/W
Capacity Factor	13.7%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Parties involved:



Drivers:

Results (per $1 million invested):

Individual Income Tax	$15,641
Corporate Income Tax	$18,417
Sales and Use Tax	-
Tax Revenue as % of project cost	3.4%
Rank	19/26

NAVIGANT

SOLAR PV – LEASE/PPA PROGRAM
CT GREEN BANK SL3 PROJECTS, C&I

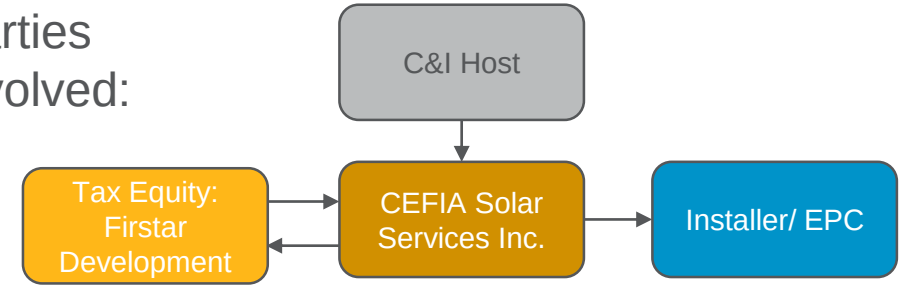
Description:

CT GB created CEFIA Solar Services Inc. to act as the managing member of their SL3 solar PV leases. For the SL3 projects, CEFIA Solar Services Inc. provides a 63.172% share and the tax equity investor, Firstar Development, provides the remaining share of 36.828%. Firstar Development receives a yearly priority return of approximately 2.9% of capital contributed considering the unfunded commitment fee and is bought out at 10% of the investment in year 5. The C&I host benefits from a lower energy price than if they purchased the power from the utility directly, leading to increased taxable income for the C&I host over the lease/PPA term.

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	25%
Project Lifetime	20 years
Average 2016 Cost	$2.30/W
Capacity Factor	13.7%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Parties involved:



Drivers:

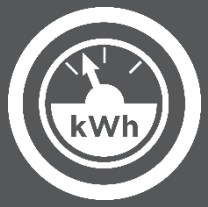
Results (per $1 million invested):

Individual Income Tax	$15,641
Corporate Income Tax	$18,417
Sales and Use Tax	-
Tax Revenue as % of project cost	3.4%
Rank	21/26

NAVIGANT

TECHNOLOGY DASHBOARDS

RENEWABLE THERMAL TECHNOLOGIES



NAVIGANT

RENEWABLE THERMAL TECHNOLOGIES – LOAN
DUCTLESS SPLIT HEAT PUMP

Description:

With the installation of a ductless heat pump, only the host, the installer/EPC, and the for-profit bank are involved in the project. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The host can be either a residential, nonprofit, or C&I host since we do not assume that the energy savings are significant enough to lead to increased income taxes considering the deduction of the interest payments. However, for sales tax purposes, we assumed these systems were installed for residential or nonprofit hosts. We assumed that if this system was not installed, another would be for similar cost, so the depreciation would be similar in either case.

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	60%
Project Lifetime	15 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Parties involved:

Drivers:

Results (per $1 million invested):

Individual Income Tax	$34,905
Corporate Income Tax	$28,220
Sales and Use Tax	$24,711
Tax Revenue as % of project cost	8.8%
Rank	8/26

NAVIGANT

RENEWABLE THERMAL TECHNOLOGIES – LOAN GEOTHERMAL INSTALLATION

Description:

With the installation of a geothermal heating system, only the host, the installer/EPC, and the for-profit bank are involved in the project. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The host can be either a residential, nonprofit, or C&I host since we do not assume that the energy savings are significant enough to lead to increased income taxes considering the deduction of the interest payments. We assumed that if this system was not installed, another would be for similar cost, so the depreciation would be similar in either case.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	60%
Project Lifetime	25 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$35,791
Corporate Income Tax	$28,387
Sales and Use Tax	-
Tax Revenue as % of project cost	6.4%
Rank	15/26

NAVIGANT

RENEWABLE THERMAL TECHNOLOGIES – LOAN
SOLAR THERMAL INSTALLATION

Description:

With the installation of a solar thermal system, only the host, the installer/EPC, and the for-profit bank are involved in the project. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The host can be either a residential, nonprofit, or C&I host since we do not assume that the energy savings are significant enough to lead to increased income taxes considering deduction of the interest payments. We assumed that if this system was not installed, another would be for similar cost, so the depreciation would be similar in either case.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	50%
Project Lifetime	20 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$29,826
Corporate Income Tax	$28,387
Sales and Use Tax	-
Tax Revenue as % of project cost	5.8%
Rank	16/26

NAVIGANT

TECHNOLOGY DASHBOARDS

OTHER RENEWABLE ENERGY

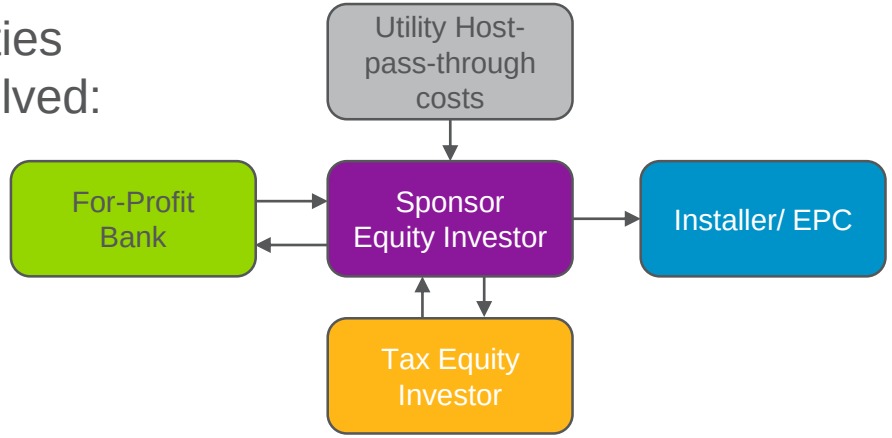
NAVIGANT

OTHER RENEWABLE ENERGY
WIND INSTALLATION

Description:

For a wind installation project, we assumed that there are five parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, the tax equity investor, and the utility host. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital, tax equity and some debt to finance the project. The tax equity investor is paid a 4% yearly return on the investment and is bought out at 10% of the investment in year 5. The wind power is sold to the utility host. The cost of the power is assumed to be a pass-through cost to the utility customer and does not increase profit for the utility host.

Parties involved:



Drivers:

Inputs:

Average Direct Wage	$60,000
Labor % of Project Cost	60%
Project Lifetime	20 years
Average 2016 Cost	$4.96/W
Capacity Factor	18%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Results (per $1 million invested):

Individual Income Tax	$32,640
Corporate Income Tax	$16,923
Sales and Use Tax	$52,239
Tax Revenue as % of project cost	10.2%
Rank	6/26

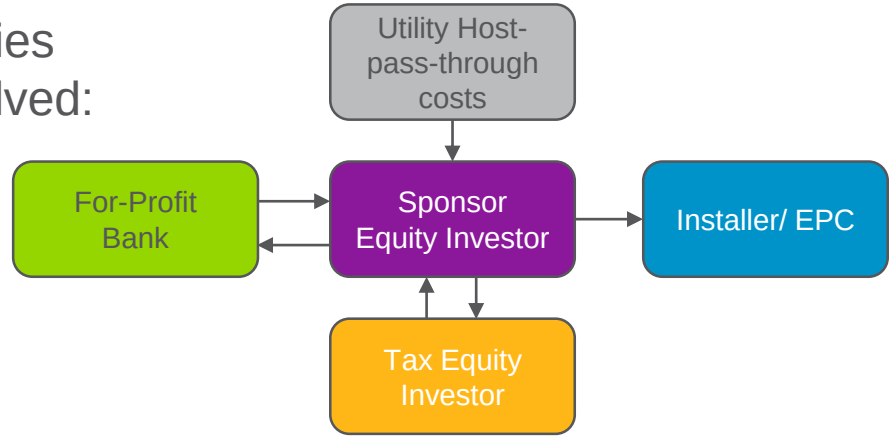
NAVIGANT

OTHER RENEWABLE ENERGY
SMALL HYDRO INSTALLATION

Description:

For a small hydropower project, we assumed that there are five parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, the tax equity investor, and the utility host. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital, tax equity and some debt to finance the project. The tax equity investor is paid a 4% yearly return on the investment and is bought out at 10% of the investment in year 5. The hydropower is sold to the utility host. The cost of the power is assumed to be a pass-through cost to the utility customer and does not increase profit for the utility host.

Parties involved:



Drivers:

Inputs:

Average Direct Wage	$60,000
Labor % of Project Cost	60%
Project Lifetime	20 years
Average 2016 Cost	$2.77/W
Capacity Factor	49%
% by Tax Equity Investor	40%
Depreciation	5 year MACRS

Results (per $1 million invested):

Individual Income Tax	$35,578
Corporate Income Tax	$40,359
Sales and Use Tax	$52,239
Tax Revenue as % of project cost	12.8%
Rank	1/26

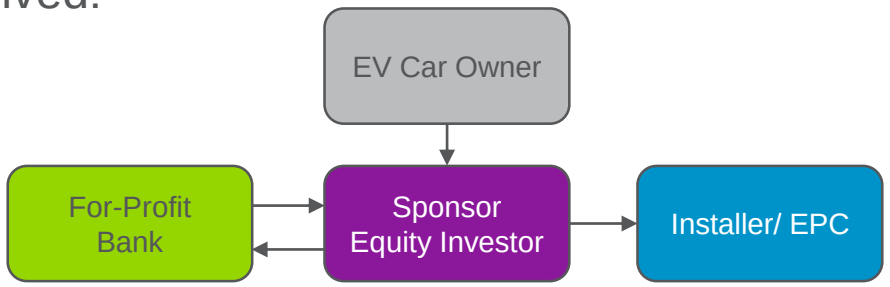
NAVIGANT

OTHER RENEWABLE ENERGY
EV CHARGING STATION INSTALLATION

Description:

For an EV charging station installation project, we assumed that there are four parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, and the EV car owners that use the charging station. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital and debt to finance the project. We assumed that the sponsor equity investor is looking for an IRR of ~10% and will use that to set the price of charging. The sponsor equity investor can depreciate 85% of the project cost.

Parties involved:



Drivers:

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	25%
Project Lifetime	20 years
Average 2016 Cost	$2.50/W
Capacity Factor	25%
% by Tax Equity Investor	-
Depreciation	7 year MACRS

Results (per $1 million invested):

Individual Income Tax	$14,718
Corporate Income Tax	$32,872
Sales and Use Tax	$59,006
Tax Revenue as % of project cost	10.7%
Rank	4/26

NAVIGANT

OTHER RENEWABLE ENERGY
UTILITY SCALE STORAGE INSTALLATION

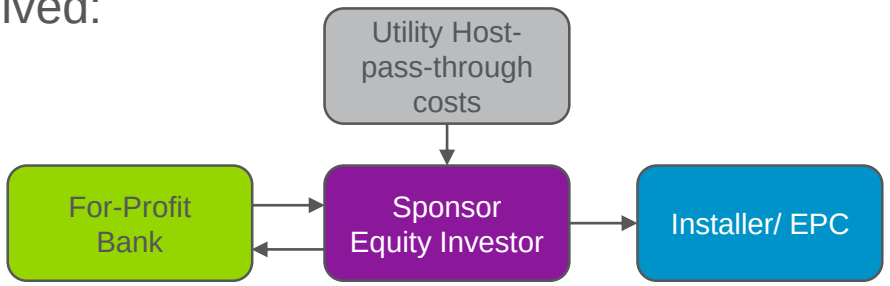
Description:

For a utility scale storage installation project, we assumed that there are four parties involved: an installer/EPC, the sponsor equity investor, a for-profit bank, and the utility host. The sponsor equity investor works with the installer/EPC to get the project installed and uses their own capital and debt to finance the project. We assumed that the sponsor equity investor is looking for an IRR of ~10% and will use that to set the price per kWh. The sponsor equity investor can depreciate 85% of the project cost. The battery power is sold to the utility host. The cost of the power is assumed to be a pass-through cost to the utility customer and does not increase profit for the utility host.

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	20%
Project Lifetime	10 years
Average 2016 Cost	$1.50/W
Capacity Factor	17%
% by Tax Equity Investor	-
Depreciation	7 year MACRS

Parties involved:



Drivers:

Results (per $1 million invested):

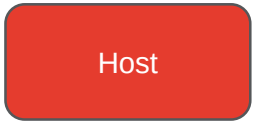
Individual Income Tax	$11,248
Corporate Income Tax	$30,143
Sales and Use Tax	$57,232
Tax Revenue as % of project cost	9.9%
Rank	7/26

NAVIGANT

OTHER RENEWABLE ENERGY
ANAEROBIC DIGESTION

Description:
We assumed that for anaerobic digestion projects, the only key player is the host of the anaerobic digestion project. However, this technology is still in the development stage and we assumed that it is not yet profitable. As the anaerobic digestion industry matures, anaerobic digestion projects may become profitable.

Parties involved:



Drivers:

Inputs:

Average Direct Wage	$60,000
Labor % of Project Cost	20%
Project Lifetime	15 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$10,823
Corporate Income Tax	-
Sales and Use Tax	$57,232
Tax Revenue as % of project cost	6.8%
Rank	13/26

NAVIGANT

OTHER RENEWABLE ENERGY
COMBINED HEAT AND POWER (CHP)

Description:

We assumed that for a combined heat and power plant it will be owned by the commercial entity or host and located on their site. The other players are the for-profit bank and the installer/EPC. We assumed that the host takes out a loan for 100% of the project cost and the loan term is 15 years. The host can be either a nonprofit or C&I host since we do not assume that the energy savings are significant enough to lead to increased income taxes considering deduction of the interest payments. We assumed that if this system was not installed, another would be for similar cost, so the depreciation would be similar in either case.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$60,000
Labor % of Project Cost	40%
Project Lifetime	15 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$21,703
Corporate Income Tax	$28,017
Sales and Use Tax	$54,742
Tax Revenue as % of project cost	10.4%
Rank	5/26

NAVIGANT

TECHNOLOGY DASHBOARDS

ENERGY EFFICIENCY

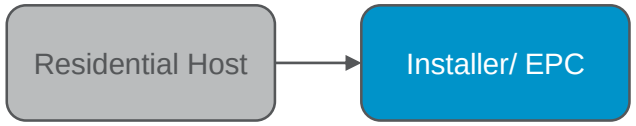
NAVIGANT

RESIDENTIAL ENERGY EFFICIENCY LIGHTING

Description:

The jobs and corporate income generated from a residential energy efficiency lighting upgrade are only when the lighting is installed by someone besides the homeowner. Lighting upgrades are usually low cost and we assumed that the residential host does not take out a loan to finance the upgrade. For this reason, only the installer/EPC has increased taxes from these projects.

Parties involved:



Drivers:

Inputs:

Average Direct Wage	$40,000
Labor % of Project Cost	50%
Project Lifetime	12 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$32,867
Corporate Income Tax	$6,542
Sales and Use Tax	$30,773
Tax Revenue as % of project cost	7.0%
Rank	12/26

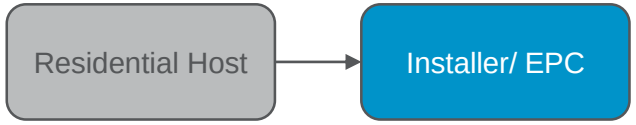
NAVIGANT

RESIDENTIAL ENERGY EFFICIENCY AUDITS

Description:

The jobs and corporate income generated from a residential energy efficiency audit are only when the audit is performed by someone besides the homeowner. Audits are usually low cost and we assumed that the residential host does not take out a loan to finance the audit. For this reason, only the installer/EPC has increased taxes from these projects. The labor is not the full cost of the project due to the cost of the equipment needed to conduct the audit such as for a blower door test.

Parties involved:



Drivers:

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	70%
Project Lifetime	-
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$40,976
Corporate Income Tax	$6,624
Sales and Use Tax	$18,694
Tax Revenue as % of project cost	6.6%
Rank	14/26

NAVIGANT

RESIDENTIAL ENERGY EFFICIENCY
WEATHERIZATION & HVAC

Description:

The jobs and corporate income generated from residential energy efficiency weatherization and HVAC upgrades are only when the work is performed by someone besides the homeowner. HVAC and weatherization upgrades can be more expensive and we assumed that the residential host takes out a loan to finance 100% of the upgrade. The three parties involved in the upgrade are the residential host, the for-profit bank, and the installer/EPC.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	50%
Project Lifetime	12 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$28,908
Corporate Income Tax	$24,364
Sales and Use Tax	$30,772
Tax Revenue as % of project cost	8.4%
Rank	11/26

NAVIGANT

RESIDENTIAL ENERGY EFFICIENCY
GAS CONVERSION

Description:

The jobs and corporate income generated from residential gas conversion are only when the work is performed by someone besides the homeowner. Gas conversion can be more expensive and we assumed that the residential host takes out a loan to finance 100% of the conversion. The three parties involved in the upgrade are the residential host, the for-profit bank, and the installer/EPC.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	50%
Project Lifetime	12 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$28,908
Corporate Income Tax	$24,364
Sales and Use Tax	$30,772
Tax Revenue as % of project cost	8.4%
Rank	10/26

NAVIGANT

COMMERCIAL ENERGY EFFICIENCY
SMALL BUSINESS ENERGY ADVANTAGE

Description:

For commercial energy efficiency projects at small businesses, we assumed that there are three parties involved: the small business host, the for-profit bank, and the installer/EPC. We assumed that the small business takes out a loan to finance 100% of the energy efficiency upgrades. The energy efficiency upgrades will reduce overall energy costs for the small business and increase profit. The small business can deduct their interest payments from the increased profits. Assuming a cost of $5/kWh saved per year, the small business has a net increase in income over the 12 year life of the upgrade.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$50,000
Labor % of Project Cost	50%
Project Lifetime	12 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$29,459
Corporate Income Tax	$21,074
Sales and Use Tax	$58,303
Tax Revenue as % of project cost	10.9%
Rank	2/26

NAVIGANT

COMMERCIAL ENERGY EFFICIENCY
LARGE COMMERCIAL AND INDUSTRIAL

Description:

For commercial energy efficiency projects at large commercial and industrial sites, we assumed that there are three parties involved: the large C&I host, the for-profit bank, and the installer/EPC. We assumed that the large C&I host takes out a loan to finance 100% of the energy efficiency upgrades. The energy efficiency upgrades will reduce overall energy costs for the C&I host and accordingly increase profit. The C&I host can deduct their interest payments from the increased profits. Assuming a cost of $5/kWh saved per year, the C&I host has a net increase income over the 12 year life of the upgrade.

Parties involved:

Drivers:

Inputs:

Average Direct Wage	$55,000
Labor % of Project Cost	50%
Project Lifetime	12 years
Average 2016 Cost	-
Capacity Factor	-
% by Tax Equity Investor	-
Depreciation	-

Results (per $1 million invested):

Individual Income Tax	$28,087
Corporate Income Tax	$21,074
Sales and Use Tax	$58,303
Tax Revenue as % of project cost	10.7%
Rank	3/26

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CONTACTS

ANDREW KINROSS
Director
akinross@navigant.com

ARIEL ESPOSITO
Senior Consultant
Ariel.Esposito@navigant.com

ARIANA TRABUCCO
Senior Consultant
Ariana.Trabucco@navigant.com

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Project/Technology Type	All-in Project Cost including Sales and Use Tax	Project investment before sales and use tax	Company Overhead (SG&A) and Margin (%)	Project Cost After Overhead (SG&A) and Margin	Labor (% of Project Cost)	Non-Labor (% of Project Cost)	Weighted Average Direct Job Wage	CT Income Tax Rate Direct Job	Fully Burdened Employee Cost	Direct Job Years Created per Project	Indirect & Induced Jobs Multiplier	Indirect & Induced Jobs Years Created per Project	Total Job-Years Created from Capital Invested	Average Induced & Indirect Job Wage	CT Income Tax Rate Induced Job	Individual Income Tax	Installer/EPC Project Profit Before Tax (Taxable Income) Year 1	NPV of Sponsor Equity Investor Taxable Income	NPV of for Profit Loan Proceeds Taxable Income Over Useful Life	NPV of Change in Host Taxable Income Over Useful Life- (Increased profit from buying power cheaper than traditional)	Connecticut Corporate Tax Rate	NPV of Tax Equity Investor Net State Taxes	Corporate Income Tax	Total Income Tax per Million	Sales and Use Tax Exemption Certification Number	Sales and Use Tax Rate	Res/Non-res	% of Labor that is Engineering/D esign Based on interviews for jobs calculator)	CT Sales and Use Tax Labor per $1,000,000 *(these do not change based on actual project size)*	CT Sales and Use Tax Non-Labor per $1,000,000 *(these do not change based on actual project size)*	CT Total Sales and Use Tax % of 1,000,000	CT Sales and Use Tax *(based on all-in project cost)*	Income Taxes, Corporate Business Taxes, and Sales Taxes *(based on all-in project cost)*	% of Investment Returned in Income Taxes, Corporate Business Taxes, and Sales Taxes
Renewable Energy	$1,000,000	A=All in Project Cost-AC	B	C=(1-B)*A	D	E=(1-D	F	G	H=F*1.3	I=C*D/H5	J	K=J*I	L=I+K	M	N	O=(P*Q)-((K*NP N))	P=#Assumed Taxable Income	O	R	S	7.5%	T	U=Corporate Tax Rate*(I+C+N+S)+T	V=O+U	W= Exemption	6.35%	X=Res or Non-res	Y	Z=(1-Y)*1,000,000*D*Sales Tax Rate an asstimate	AA=1,000,000*E*Sales Tax Rate an asstimate	AB=Z2+AA)/1, 000,000	AC=V+AB	AD=AC/A
Fuel Cell																																	
Fuel Cell R&D/Endorsem/ins- *assume not profitable*	$ 1,000,000	$ 981,306	20%	$ 785,045	40%	60%	$ 85,000	5.1%	$ 110,500	2.8	1.3	3.7	**6.5**	$ 55,000	4.2%	$ 20,911					7.5%		$ -	$ 20,911	CERT-108 and CERT	6.35%	Non-res	100%	$ -	$ 19,050	1.9%	$ 18,694	$ 39,605	4.0%
Fuel Cell Installation and Manufacturing- *assume not pro*	$ 1,000,000	$ 944,805	20%	$ 755,844	40%	60%	$ 60,000	4.3%	$ 78,000	3.9	1.5	5.8	**9.7**	$ 55,000	4.2%	$ 23,489		$ 448,743	$ 100,979		7.5%	$ (34,121)	$ 7,108	$ 30,598	NA	6.35%	Non-res	20%	$ 20,320	$ 38,100	5.8%	$ 55,195	$ 85,793	8.6%
Solar PV- For-Profit Bank Loan Program																	25 years																
Solar PV Installation - Residential & Non-profits	$ 1,000,000	$ 1,000,000	20%	$ 800,000	35%	65%	$ 55,000	4.2%	$ 71,500	3.9	1.3	5.1	**9.0**	$ 55,000	4.2%	$ 20,878	$ 70,000		$ 288,490		7.5%		$ 26,887	$ 47,765	CERT- 140	6.35%	Res	17%	$ -	$ -	0.0%	$ -	$ 47,765	4.8%
Solar PV Installation - C&I	$ 1,000,000	$ 1,000,000	20%	$ 800,000	25%	75%	$ 50,000	4.1%	$ 65,000	3.1	1.3	4.0	**7.1**	$ 55,000	4.2%	$ 15,641	$ 70,000		$ 288,490	$ (163,596)	7.5%		$ 14,617	$ 30,258	CERT- 140	6.35%	Non-res	13%	$ -	$ -	0.0%	$ -	$ 30,258	3.0%
Solar PV- Not-For-Profit Bank Loan Program																	25 years																
Solar PV Installation - Residential & Nonprofits	$ 1,000,000	$ 1,000,000	20%	$ 800,000	35%	65%	$ 55,000	4.2%	$ 71,500	3.9	1.3	5.1	**9.0**	$ 55,000	4.2%	$ 20,878	$ 70,000		$ 288,490		7.5%		$ 5,250	$ 26,128	CERT- 140	6.35%	Res	17%	$ -	$ -	0.0%	$ -	$ 26,128	2.6%
Solar PV Installation - C&I	$ 1,000,000	$ 1,000,000	20%	$ 800,000	25%	75%	$ 50,000	4.1%	$ 65,000	3.1	1.3	4.0	**7.1**	$ 55,000	4.2%	$ 15,641	$ 70,000		$ 288,490	$ (163,596)	7.5%		$ (7,020)	$ 8,622	CERT- 140	6.35%	Non-res	13%	$ -	$ -	0.0%	$ -	$ 8,622	0.9%
Solar PV- Lease/PPA Program- Private Projects																	20 years																
Solar PV Installation - Residential & Nonprofits	$ 1,000,000	$ 1,000,000	20%	$ 800,000	35%	65%	$ 55,000	4.2%	$ 71,500	3.9	1.3	5.1	**9.0**	$ 55,000	4.2%	$ 20,878	$ 70,000	$ 312,259	$ 144,245		7.5%	$ (36,114)	$ 3,374	$ 24,252	CERT- 140	6.35%	Res	17%	$ -	$ -	0.0%	$ -	$ 24,252	2.4%
Solar PV Installation - C&I	$ 1,000,000	$ 1,000,000	20%	$ 800,000	25%	75%	$ 50,000	4.1%	$ 65,000	3.1	1.3	4.0	**7.1**	$ 55,000	4.2%	$ 15,641	$ 70,000	$ 312,851	$ 144,245	$ 179,981	7.5%	$ (36,114)	$ 16,917	$ 32,558	CERT- 140	6.35%	Non-res	13%	$ -	$ -	0.0%	$ -	$ 32,558	3.3%
Solar PV- Lease/PPA Program- CGB Projects																	20 years																
SL2 Lease- Solar PV Installation - Residential & Nonprof	$ 1,000,000	$ 1,000,000	20%	$ 800,000	35%	65%	$ 55,000	4.2%	$ 71,500	3.9	1.3	5.1	**9.0**	$ 55,000	4.2%	$ 20,878	$ 70,000	$ 373,238	$ 112,511		7.5%	$ (38,307)	$ 3,374	$ 24,252	CERT- 140	6.35%	Res	17%	$ -	$ -	0.0%	$ -	$ 24,252	2.4%
SL2 PPA-Solar PV Installation - C&I	$ 1,000,000	$ 1,000,000	20%	$ 800,000	25%	75%	$ 50,000	4.1%	$ 65,000	3.1	1.3	4.0	**7.1**	$ 55,000	4.2%	$ 15,641	$ 70,000	$ 373,839	$ 112,511	$ 179,981	7.5%	$ (38,307)	$ 16,917	$ 32,558	CERT- 140	6.35%	Non-res	13%	$ -	$ -	0.0%	$ -	$ 32,558	3.3%
SL3 PPA-Solar PV Installation - C&I	$ 1,000,000	$ 1,000,000	20%	$ 800,000	25%	75%	$ 50,000	4.1%	$ 65,000	3.1	1.3	4.0	**7.1**	$ 55,000	4.2%	$ 15,641	$ 70,000	$ 462,614	$ 112,511	$ 179,981	7.5%	$ (38,028)	$ 16,917	$ 32,558	CERT- 140	6.35%	Non-res	13%	$ -	$ -	0.0%	$ -	$ 32,558	3.3%
Renewable Thermal Technologies -Loan																																	
Ductless Split Heat Pump	$ 1,000,000	$ 975,229	20%	$ 780,183	60%	40%	$ 55,000	4.2%	$ 71,500	6.5	1.3	8.5	**15.1**	$ 55,000	4.2%	$ 34,905	$ 70,000	$ 68,266		$ 288,490	7.5%		$ 26,757	$ 61,661	NA	6.35%	Res	5%	$ -	$ 25,400	2.5%	$ 24,771	$ 86,432	8.6%
Geothermal Installation	$ 1,000,000	$ 1,000,000	20%	$ 800,000	60%	40%	$ 55,000	4.2%	$ 71,500	6.7	1.3	8.7	**15.4**	$ 55,000	4.2%	$ 35,791	$ 70,000	$ 68,266		$ 288,490	7.5%		$ 26,887	$ 62,678	CERT- 140	6.35%	Res	5%	$ -	$ -	0.0%	$ -	$ 62,678	6.3%
Solar Thermal Installation	$ 1,000,000	$ 1,000,000	20%	$ 800,000	50%	50%	$ 55,000	4.2%	$ 71,500	5.6	1.3	7.3	**12.9**	$ 55,000	4.2%	$ 29,826	$ 70,000			$ 288,490	7.5%		$ 26,887	$ 56,713	CERT- 140	6.35%	Res	5%	$ -	$ -	0.0%	$ -	$ 56,713	5.7%
Other																																	
Wind Installation -*assume profitable*	$ 1,000,000	$ 947,761	20%	$ 758,209	60%	40%	$ 60,000	4.3%	$ 78,000	5.8	1.3	7.6	**13.4**	$ 55,000	4.2%	$ 32,640	$ 66,343	$ 452,458	$ 144,245		7.5%	$ (34,228)	$ 15,501	$ 48,141	NA	6.35%	Non-res	22%	$ 29,718	$ 25,400	5.5%	$ 52,239	$ 100,380	10.0%
Small Hydro Installation -*assume profitable*	$ 1,000,000	$ 947,761	20%	$ 758,209	60%	40%	$ 60,000	4.3%	$ 78,000	5.8	1.3	7.6	**13.4**	$ 55,000	4.2%	$ 32,640	$ 66,343	$ 764,943	$ 144,245		7.5%	$ (34,228)	$ 38,937	$ 71,578	NA	6.35%	Non-res	22%	$ 29,718	$ 25,400	5.5%	$ 52,239	$ 123,816	12.4%
EV Charging Stations - Installation -*assume profitable*	$ 1,000,000	$ 940,994	20%	$ 752,795	25%	75%	$ 50,000	4.1%	$ 65,000	2.9	1.3	3.8	**6.7**	$ 55,000	4.2%	$ 14,718	$ 65,870	$ 93,963	$ 269,641		7.5%		$ 31,461	$ 46,179	NA	6.35%	Non-res	5%	$ 15,081	$ 47,625	6.3%	$ 59,006	$ 105,185	10.5%
Utility Scale Storage Installation -*assume profitable*	$ 1,000,000	$ 942,768	20%	$ 754,215	20%	80%	$ 55,000	4.2%	$ 71,500	2.1	1.3	2.7	**4.9**	$ 55,000	4.2%	$ 11,248	$ 65,994	$ 105,293	$ 281,767		7.5%		$ 28,729	$ 39,976	NA	6.35%	Non-res	22%	$ 9,906	$ 50,800	6.1%	$ 57,232	$ 97,208	9.7%
Anaerobic Dissetion- *assume not profitable*	$ 1,000,000	$ 942,768	20%	$ 754,215	20%	80%	$ 60,000	4.3%	$ 78,000	1.9	1.3	2.5	**4.4**	$ 55,000	4.2%	$ 10,823	$ 65,994				7.5%		$ -	$ 10,823	NA	6.35%	Non-res	22%	$ 9,906	$ 50,800	6.1%	$ 57,232	$ 68,054	6.8%
CHP- *assumed owned by commercial entity*	$ 1,000,000	$ 949,258	20%	$ 756,207	40%	60%	$ 60,000	4.3%	$ 78,000	3.9	1.3	5.0	**8.9**	$ 55,000	4.2%	$ 21,703	$ 66,168			$ 288,490	7.5%		$ 26,599	$ 48,302	NA	6.35%	Non-res	22%	$ 19,812	$ 38,100	5.8%	$ 54,742	$ 103,044	10.3%
Energy Efficiency																																	
Residential (Single and Multi-Family)- Loan																																	
Lighting	$ 1,000,000	$ 969,227	20%	$ 775,382	50%	50%	$ 60,000	3.9%	$ 52,000	7.5	1.3	9.7	**17.1**	$ 55,000	4.2%	$ 32,867	$ 67,846				7.5%		$ 5,088	$ 37,956	NA	6.35%	Res	5%	$ -	$ 31,750	3.2%	$ 30,773	$ 68,729	6.9%
Home Energy Solutions (HES) - Audits	$ 1,000,000	$ 981,306	20%	$ 785,045	70%	30%	$ 55,000	4.2%	$ 71,500	7.7	1.3	10.0	**17.7**	$ 55,000	4.2%	$ 40,976	$ 68,691				7.5%		$ 5,153	$ 46,129	NA	6.35%	Res	5%	$ -	$ 19,050	1.9%	$ 18,694	$ 64,822	6.5%
HES - Weatherization & HVAC	$ 1,000,000	$ 969,227	20%	$ 775,382	50%	50%	$ 55,000	4.2%	$ 71,500	5.4	1.3	7.0	**12.5**	$ 55,000	4.2%	$ 28,908	$ 67,846		$ 227,624		7.5%		$ 22,910	$ 51,818	NA	6.35%	Res	5%	$ -	$ 31,750	3.2%	$ 30,773	$ 82,591	8.3%
Gas Conversion	$ 1,000,000	$ 969,227	20%	$ 775,382	50%	50%	$ 55,000	4.2%	$ 71,500	5.4	1.3	7.0	**12.5**	$ 55,000	4.2%	$ 28,908	$ 67,846		$ 227,624		7.5%		$ 22,910	$ 51,818	NA	6.35%	Res	5%	$ -	$ 31,750	3.2%	$ 30,773	$ 82,591	8.3%
Commercial- Loan																																	
Small Business Energy Advantage	$ 1,000,000	$ 941,697	20%	$ 753,358	50%	50%	$ 55,000	4.1%	$ 65,000	5.8	1.3	7.5	**13.3**	$ 55,000	4.2%	$ 29,459	$ 65,919		$ 227,624	$ (41,385)	7.5%		$ 19,662	$ 49,120	NA	6.35%	Non-res	5%	$ 30,163	$ 31,750	6.2%	$ 58,303	$ 107,423	10.7%
Large Commercial and Industrial	$ 1,000,000	$ 941,697	20%	$ 753,358	50%	50%	$ 55,000	4.2%	$ 71,500	5.3	1.3	6.8	**12.1**	$ 55,000	4.2%	$ 28,087	$ 65,919		$ 227,624	$ (41,385)	7.5%		$ 19,662	$ 47,749	NA	6.35%	Non-res	5%	$ 30,163	$ 31,750	6.2%	$ 58,303	$ 106,052	10.6%

Exemption Certificate #	Exemption Certificate Name	Labor	Non-Labor
NA	No Exemption	Not-exempt	Not-exempt
CERT-108 and CERT-109	Partial Exemption of Materials, Tools, and Fuels and Partial Exemption for Machinery, Equipment, or Repair and Replacement Parts Solar Heating Systems, Solar Electricity Generating Systems, and Ice Storage Cooling Systems	Not-exempt	50% Exempt
CERT- 140		Exempt	Exempt

Enter
Not-exempt
Exempt
50% Exempt

Enter
Not-exempt
Exempt
50% Exempt

Job Calculation Notes:
Company Overhead and Margin (B) is assumed to be 20% and include jobs related to sales, marketing, management and other overhead jobs
Labor (D) is the percent of the project cost that is used to ow installers, electricians, project managers and engineers
Non-Labor (E) is the percent of the project cost that is used to cover all other project expenses, includes materials and non-labor soft costs
Weighted Average Wage (F) is distributed amonnst installers, electricians and PM/engineers based on wages in CT as recorded by the U.S. Department of Labor as of Mar 2015
The weight for each job type is based on research and/or interview feedback for employee breakdowns for that field/technology
Total Job-Years Created from Capital Invested (L) is the total number of installer, electrician and PM/engineering jobs created for 1 year

Source: Navigant Consulting, Connecticut Green Bank, DECD.
DECD provided multiplier of 1.3 for indirect and induced jobs.

EVALUATION FRAMEWORK
ECONOMIC DEVELOPMENT
REVENUE GENERATION

CONNECTICUT GREEN BANK

Revenue Generation Impact Overview

Economic Development is a positive externality of the Green Bank's programs and activities. Directly, the capital deployed is used to buy the hardware for projects and pay for the labor needed to implement them. Indirectly, this economic activity creates jobs as those in the supply chain increase their operations in response to the implementation of projects. In 2009, the Connecticut Clean Energy Fund (CCEF), the predecessor to the Green Bank, in partnership with the Department of Economic and Community Development (DECD) and the Connecticut Energy Efficiency Fund (CEEF),[1] engaged Navigant Consulting to complete a study to quantify the job years and their wages created as a result of the support from the CCEF and CEEF activities. This study was refreshed in 2016 by the Connecticut Green Bank (Green Bank) in coordination with DECD and with assistance from Eversource Energy and United Illuminating.

The resulting job factors are unique to the combination of project type (technology used) and the Green Bank Program leveraged for the project. The job factors estimate the number of direct, indirect, and induced job-years created per $1 million of gross project costs deployed[2] in a given combination of project type and program. More on this can be found here:

- Jobs Fact Sheet
- Job Study

Methodology

The Green Bank has long recognized the economic benefits of its investments. Since inception, the Green Bank has stimulated the creation of more than 16,000 jobs-years. This economic activity also results in revenue for the state in the form of individual income, corporate, and sales taxes.

Working with Navigant in 2018, the Green Bank developed a methodology to estimate this revenue. This methodology, which was has been reviewed with the Department of Revenue Services, and is explained on the pages that follow.

1 CT Renewable Energy / Energy Efficiency Economy Baseline Study (March 27, 2009)

2 Note that the Green Bank differentiates between Capital Deployed, Gross Project Cost, and Total Investment. The Capital Deployed and Total Investment metrics include financing costs but might exclude the portion of project costs borne by the building owners. For calculating job-years and taxes, the Green Bank uses Gross Actual project cost as that metric best reflects the cashflows going to lenders and installers.

Methodology

Individual Income Taxes

Personal Income Tax Generated = [Number of job-years created]* x [weighted average wage]** x [income tax rate]***

* Source: 2009 and 2016 Jobs Studies	** Source: 2009 and 2016 Jobs Studies, and NREL JEDI Model	*** Source: Department of Revenue Services Tax Calculator

The Green Bank uses the methodology developed by Navigant to estimate individual income taxes. This method relies on the factors for job creation and estimated wages[3] produced by both the 2009 and 2016 Job studies.[4] Then the appropriate effective tax rate is applied based on the tax calculator that can be found on the Department of Revenue Services' website.[5]

To operationalize this, the Green Bank has created individual income tax factors that too are a result of the combination of project type (technology used) and the Green Bank Program leveraged for the project, and estimate the taxes paid per $1 million invested.

By applying this methodology[6], for example, to the $1.2 billion of costs of projects sparked by the Green Bank since its inception, the Green Bank estimates its activities have generated $30.1 million in individual income tax revenues for the General Fund.

Corporate Income Taxes

Corporate Income Tax Generated = [Sum of taxable income]* x [corporate income tax rate]**

* Source: 2018 Tax Calculator models of corporate profitability	** Source: CT Department of Revenue Services

The Green Bank uses the Navigant-developed method for estimating corporate income taxes. The method reviews all parties (installer, lender, investor, etc.) involved in a project, estimates their taxable income from their involvement with the project over its lifetime, and then applies the appropriate standard corporate tax rate. The estimations used for profitability come from an in-depth analysis prepared by Navigant based on a review of publicly traded companies and qualified CT Green Bank contractors (installers).

To operationalize this, the Green Bank has created corporate income tax factors that too are a result of the combination of project type (technology used) and the Green Bank Program leveraged for the project and estimate the taxes paid per $1 million invested.

By applying this methodology[7], for example, to the $1.2 billion of costs of projects sparked by the Green Bank since its inception, the Green Bank estimates its activities have generated $13.9 million in corporate income tax revenues for the General Fund.

3 Only the 2016 study included wages for indirect and induced job-years. Navigant identified a wage based off of NREL models for 2009 that is consistent with what was done for the 2016 study.

4 The Green Bank applies the wages and factors from the 2009 study to all projects closed prior to July 1, 2017. The Factors resulting from the 2016 study are applied to all projects closed after June 30, 2017.

5 For the purposes of this, it is assumed that all job-years created are located in Connecticut and everyone is filing taxes as a single filer.

6 This methodology has been presented to the CT Department of Revenue Services in January 2018. We expect to further review it with them in March 2018 and for it to be approved by the Green Bank Board of Directors subsequently.

7 This methodology has been presented to the CT Department of Revenue Services in January 2018. We expect to further review it with them in March 2018 and for it to be approved by the Green Bank Board of Directors subsequently

Sales Tax

The Green Bank's programs also generate revenue for the state through sales and use tax. While solar thermal, solar photovoltaic, and geothermal generation equipment and activities (home installation work) are exempt from sales tax, the rest of the activities to sell and install the Green Bank's projects contribute to the general fund.

Sales Tax Generated = [Gross Project Cost]* x [% of Project that is a taxable Service or Hardware]** x [6.35%]***

* Source: CT Green Bank Data Warehouse	** Source: 2018 Navigant Tax Calculator	*** Source: CT Department of Revenue Services

As part of their 2018 analysis, Navigant identified what portion of a project's costs are from labor and what are from hardware. They also broke down the labor portion into what is engineering or design work and what is pure installation work as this distinction impacts whether or not the contracted labor is taxable. Applying the state's 6.35% sales tax rate to the taxable projects (i.e. excluding solar PV, solar thermal, and geothermal projects which are exempt from sales taxes) or portions of projects, the Green Bank estimates that projects stimulated by its programs have generated $13.6 million in sales taxes for the state since inception.[8]

Overall

Across all of its projects, for FY 2012 through FY 2017, the Green Bank's activities have generated an estimated $57.6 million for the state.

Table 1.

Sum of ActualGrossCost	FYClosed						
Market	2012	2013	2014	2015	2016	2017	Grand Total
Capital Deployed	$38,822,491	$118,871,396	$105,012,856	$317,404,490	$301,155,574	$194,278,615	$1,075,545,420
Capital Deployed - Labor	$17,287,081	$46,004,645	$37,643,116	$115,720,947	$107,259,752	$72,831,750	$396,747,291
Capital Deployed - Hardware	$21,535,410	$72,866,751	$67,369,740	$201,683,542	$193,895,822	$121,446,864	$678,798,129
Direct Jobs Created	259	636	635	1,859	1,880	806	6,075
Indirect and Induced Jobs Created	416	1,021	1,020	2,890	3,013	413	8,773
Total Jobs Created	675	1,656	1,656	4,749	4,892	1,219	14,848
Individual Income Taxes Generated	$1,293,428	$3,186,490	$3,012,139	$9,378,468	$8,891,072	$4,308,682	$30,070,278
Corporate Taxes Generated	$729,841	$1,146,201	$1,654,528	$4,359,442	$3,579,538	$2,479,796	$13,949,345
Sales Taxes Generated	$182,457	$4,165,296	$856,421	$4,016,435	$2,291,750	$2,079,636	$13,591,996
Total Taxes Generated	$2,205,725	$8,497,987	$5,523,088	$17,754,345	$14,762,360	$8,868,114	$57,611,618

8 Methodology was reviewed by the CT Department of Revenue Services in March 2018 and approved by the Green Bank Board of Directors subsequently..

continued >

About the Connecticut Green Bank

The Connecticut Green Bank was established by the Connecticut General Assembly on July 1, 2011 as a part of Public Act 11-80. As the nation's first full-scale green bank, it is leading the clean energy finance movement by leveraging public and private funds to scale-up renewable energy deployment and energy efficiency projects across Connecticut. The Green Bank's success in accelerating private investment in clean energy is helping Connecticut create jobs, increase economic prosperity, promote energy security and address climate change. In 2017, the Connecticut Green Bank received the Innovations in American Government Award from the Harvard Kennedy School Ash Center for Democratic Governance and innovation for their "Sparking the Green Bank Movement" entry. For more information about the Connecticut Green Bank, please visit www.ctgreenbank.com.

About the Department of Revenue Services

The Connecticut Department of Revenue Services is responsible for instilling public trust in the collection of and increasing the voluntary compliance with taxes in the state. To learn more about DRS, please visit http://www.ct.gov/drs/site/default.asp.

845 Brook Street, Rocky Hill CT 06067 • 300 Main Street, 4th Floor, Stamford CT 06901
860.563.0015 www.ctgreenbank.com

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

CONNECTICUT GREEN BANK

Memo

To: Susan Sherman, Legislative Program Manager. Department of Revenue Services

From: Lucy Charpentier, Manager of Evaluation, Measurement and Verification; Eric Shrago, Director of Operations

Date: March 8, 2018

Re: Connecticut Green Bank/Navigant Consulting Development and use of a Tax Revenue Calculator for Income, Sales and Use Taxes

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BACKGROUND

Founded in 2011, the Connecticut Green Bank is a quasi-public institution that has leveraged its own capital and financing partners to close over 26,000 projects and deploy over $1 Billion dollars into the Connecticut economy in support of cleaner, more efficient energy projects for homes, businesses, and institutions across the state. The benefits from these projects are not just energy related. They have led to the creation of over 14,000 jobs and improved the air quality in state by reducing greenhouse gasses by over 9 million tons that have saved millions of dollars on public health expenditures.

The economic activity sparked by the Green Bank's activities also generates tax revenue for the general fund through personal income taxes paid by those employed in jobs created by these projects, corporate taxes paid on profits earned from these projects and through sales and use taxes generated when these projects are sold. The Green Bank is proposing a methodology for quantifying this tax revenue generation.

ECONOMIC DEVELOPMENT

Economic Development is a positive externality of the Green Bank's programs and activities. Directly, the capital deployed is used to buy the hardware for projects and pay for the labor needed to implement them. Indirectly, this economic activity creates jobs as those in the supply chain increase their operations in response to the implementation of projects. In 2009, the Connecticut Clean Energy Fund (CCEF), the predecessor to the Green Bank, in partnership with the Department of Economic and Community Development (DECD) and the Connecticut Energy Efficiency Fund (CEEF),[1] engaged Navigant Consulting to complete a study to quantify the job years and their wages created because of the support from the CCEF and CEEF activities. This study was refreshed in 2016 by the Connecticut Green

[1] CT Renewable Energy / Energy Efficiency Economy Baseline Study (March 27, 2009)

Bank (Green Bank) in coordination with DECD and with assistance from Eversource Energy and United Illuminating.

The resulting job factors are unique to the combination of project type (technology used) and the Green Bank Program leveraged for the project. The job factors estimate the number of direct and indirect and induced job-years created per $1 million of gross project costs deployed[2] in a given combination of project type and program. More on this can be found here:

- Jobs Fact Sheet
- Job Study

Since inception, the Green Bank has stimulated the creation of more than 16,000 jobs-years[3].

This economic activity also results in revenue for the state in the form of individual income, corporate, and sales taxes. The Green Bank engaged Navigant in 2017 to develop a methodology for estimating this revenue. At present, the Green Bank is reviewing the methodology with the Department of Revenue Services.

INCOME TAX ESTIMATION METHODOLOGY

Building on the Green Bank's Jobs Calculator, the Income Tax Calculator uses the technology specific number of jobs and estimated wages[4] produced by both the 2009 and 2016 Job studies[5]. Then the appropriate effective tax rate is applied based on the tax calculator that can be found on the Department of Revenue Services' website[6] to determine the taxes generated created per $1 million in project costs.

For Corporate Income Taxes, the Green Bank uses the Navigant-developed. This method reviews all parties (installer, lender, investor, etc.) involved in a project, estimates their taxable income from their involvement with the project over its lifetime, and then applies the appropriate standard corporate tax rate. The estimations used for profitability come from an

[2] Note that the Green Bank differentiates between Capital Deployed, Gross Project Cost, and Total Investment. The Capital Deployed and Total Investment metrics include financing costs but might exclude the portion of project costs borne by the building owners. For calculating job-years and taxes, the Green Bank uses Gross Actual project cost as that metric best reflects the cashflows going to lenders and installers.

[3] This number includes job-years created by the Green Bank's requirement of the Energy Efficiency Board's Home Energy Solutions audit for all RSIP program participants which has not previously be included.

[4] Only the 2016 study included wages for indirect and induced job-years. Navigant identified a wage based off of NREL models for 2009 that is consistent with what was done for the 2016 study.

[5] The Green Bank applies the wages and factors from the 2009 study to all projects closed prior to July 1, 2017. The Factors resulting from the 2016 study are applied to all projects closed after June 30, 2017.

[6] For the purposes of this, it is assumed that all job-years created are located in Connecticut and everyone is filing taxes as a single filer.

in-depth analysis prepared by Navigant based on a review of publicly traded companies and qualified CT Green Bank contractors (installers).

SALES AND USE TAX ESTIMATION METHODOLOGY

The Green Bankand Navigant reviewed each technology type to determine the taxable labor and non-labor portions of projects to determine and applied the state sales tax rate of 6.25% to determine the sales and use taxes generated per $1 million of project costs. Both the Green Bank and Navigant have reviewed relevant statutes to determine and apply existing tax exemptions.

RECOMMENDATION

The Green Bank proposes to use above mentioned methodologies as its official tool for measuring Tax Revenues generated and will automate its use where and when possible in our Data Warehouse.

Enc: Tax Calculator

INTEROFFICE MEMORANDUM

TO: BRYAN GARCIA, PRESIDENT AND CEO, CONNECTICUT GREEN BANK

FROM: SCOTT JACKSON, COMMISSIONER, DEPARTMENT OF REVENUE SERVICES

SUBJECT: TAX REVENUE CALCULATOR

DATE: 8/3/2018

CC: SUSAN SHERMAN

Thank you for offering the Department of Revenue Services the opportunity to review and comment upon the Tax Revenue Calculator developed by Navigant Consulting as the official method to assess tax revenue for the State of Connecticut by investments and co-investments mobilized by the Green Bank.

My team and I have carefully reviewed the documents you provided, including your memo of January 24, 2018 and the Tax Revenue Calculator Final Report issued March 28, 2018. It is the analysis of this Agency that the methodology employed by Navigant Consulting represents a fair and reasonable approach to capturing the financial benefits of Green Bank investments derived by the State. The analysis of DRS is confined to the arena of tax revenue; additional accrued community and societal benefits have not been incorporated into our analysis.

The Tax Revenue Calculator accurately reflects contemporary tax types, rates, and exemptions although it is my recommendation that, as long as the calculator is employed, the Green Bank confirm such tax types, rates, and exemptions at the conclusion of any legislative session. Additionally, you may wish to validate with the Connecticut Department of Labor's Office of Research on an annual basis the "Average Direct Wage" identified for the various projects and installations.

In summary, DRS believes that the material provided is focused and illustrative and the estimates provided by the Tax Revenue Calculator are reasonable.

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

CONNECTICUT GREEN BANK

Memo

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

From: Bryan Garcia (President and CEO)

Date: October 26, 2018

Re: Staff Loan Loss Approval Policy for Transactions Under $100,000 – Q1 FY 2019 Report

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At the June 13, 2018 Board of Directors (BOD) meeting of the Connecticut Green Bank ("Green Bank") it was resolved that the BOD approves the authorization of Green Bank staff to evaluate and approve loan loss restructurings or write-offs for transactions less than $100,000 which are pursuant to an established formal approval process in an aggregate amount not to exceed $500,000 from the date of the last Deployment Committee meeting. This memo provides an update on loan losses below $100,000 that were evaluated and approved thus far in Q1 of FY 2019.

Within the FY 2019 budget, a "Provision for Loan Loss" of $2,923,674 was included as a "Non-Operating Expense" item. This memo will track loan losses against this FY 2019 budget expense.

During this period, 0 projects were evaluated and approved for loan loss restructurings and write-offs in an aggregate amount of $0. Through September of FY19 there have been no loan write-offs. See the attached analysis prepared by the accounting department for further details. For FY 2019, 0 transactions have been written-off totaling $0 amount of losses – or 0% of the "Provision for Loan Loss" in the FY 2019 budget. The frequency of transaction write-offs has been 0 a month totaling $0 amount of losses on average.

In the future, if members of the Board would be interested in the internal documentation of the review and approval process Green Bank staff and officers go through, please let us know and we would be happy to provide.

Project Name: **N/A**

Principal Outstanding: **N/A**

Type of Loss: **Restructuring or Write-Off**

Description
N/A

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

CONNECTICUT GREEN BANK

Memo

To: Connecticut Green Bank Board of Directors

From: Eric Shrago, Director of Operations

CC: Bryan Garcia, President and CEO

Date: October 26, 2018

Re: Fiscal Year Q1 2019 Progress to Targets

The following memo outlines Connecticut Green Bank (CGB) progress to targets for Fiscal Year (FY) 2019 as of September 30, 2018.

Infrastructure Sector
The Infrastructure sector is off to a great start. Residential Solar Investment Program (RSIP) is ahead of its target, in terms of projects, capital and capacity. In the first quarter, we see installed costs of $3.97/watt which is greater than our original expectations of $3.50/watt.

Table 1. Infrastructure Sector FY 2019 Progress to Targets

	Projects			Capital Deployed			Capacity (MW)		
Product/Program	**Closed**	**Target**	**% to Target**	**Closed**	**Target**	**% to Target**	**Closed**	**Target**	**% to Target**
RSIP	2,145	6,000	36%	$70,345,216	$168,000,000	42%	17.7	48.0	37%
Infrastructure Total	**2,145**	**6,000**	**36%**	**$70,345,216**	**$168,000,000**	**42%**	**17.7**	**48.0**	**37%**

Residential Sector
Smart-E targets performance to date has exceeded expectations, due to strong volume and growth in new contractors using the product continuing from earlier this year. However, there has been a significant decline in loan size vs. projections due to a significantly higher proportion of HVAC and Efficiency projects versus to solar.

The Low-to-Moderate-Income (LMI) lease program offered through PosiGen is on target to meet its goals, which is a good turn around compared to prior quarters where it was running below targets. This is due to a fully staffed sales team, strong outreach, and a successful municipal campaign in Hamden.

The Multifamily Program has worked through a back-log of pre-development loan applications in FY'18, yielding a lower target for FY19. Half of the project count target for FY'19 has already been

achieved via two large energy audits for Beacon Communities projects seeking CHFA refinancing, achieving 81% of the program's financing target. On the Term front, only one of the projected fifteen projects for FY'19 closed in the first quarter – an EnergizeCT Health & Safety Revolving Loan Fund ("ECT H&S RLF") transaction that catalyzed a low-income rehabilitation project that was otherwise unable to proceed. However, program staff has identified nine additional projects that are expected to close by the end of the calendar year into early 2019, three of which have already closed since the end of 1Q19. These range across all of the program's product offerings from LIME Loan to Solar PPA to C-PACE to additional ECT H&S RLF transactions.

The aforementioned closed transactions and those anticipated to close in the near future continue to typify the MFH sector's transactions, characterized by many months and even years of diligent attention and cultivation and proceeding in spite of logistical, bureaucratic, political, and economic challenges.

MFH # of Units	Closed
Affordable	456
Market Rate	0
Total	**456**

The Multifamily Pre-development and Term lending projects closed year to date impact 456 housing units, all of which serve low- and moderate-income residents.

Table 2. Residential Sector FY 2019 Progress to Targets

	Projects			Capital Deployed			Capacity (MW)		
Product/Program	**Closed**	**Target**	**% to Target**	**Closed**	**Target**	**% to Target**	**Closed**	**Target**	**% to Target**
Smart-E	216	540	40%	$2,622,492	$8,775,000	30%	0.2	1.3	12%
Low Income Loans/Leases	155	586	26%	$4,164,151	$15,565,855	27%	1.0	3.6	28%
Multi-Family Pre-Development	2	4	50%	$0	$70,000	0%	0.0	0.0	0%
Multi-Family Term	1	15	7%	$1,080,886	$2,500,000	43%	0.0	0.1	0%
Residential Total	374	1,145	33%	$7,867,529	$26,910,855	29%	1.2	5.0	23%

Table 3. Smart-E Channels

Smart-E Loan Channels	Closed	% of Loans
Home Performance	15	7%
HVAC	167	77%
Solar	18	8%
EV	0	0%
Blank	16	7%
Total	216	100%

Commercial, Industrial, & Institutional Sector

The Commercial, Industrial, & Institutional Sector is off to a slow start as both products build pipelines. The C-PACE program closed 7 projects (12%of the annual target), while the amount of capital deployed was $3,282,732 (14%of the annual target).

The Commercial Lease products, CT Solar Lease III and Onyx, underperformed their joint Projects Target.

Table 4. Commercial, Industrial and Institutional Sector FY 2019 Progress to Targets

	Projects			Capital Deployed			Capacity (MW)		
Product/Program	**Closed**	**Target**	**% to Target**	**Closed**	**Target**	**% to Target**	**Closed**	**Target**	**% to Target**
CPACE	7	57	12%	$3,282,732	$24,082,500	14%	0.9	6.6	14%
Commercial Lease	3	25	12%	$1,393,485	$14,062,500	10%	0.4	6.3	7%
CI&I Total	**9**	**73**	**12%**	**$4,226,644**	**$33,082,500**	**13%**	**1.2**	**10.6**	**11%**

Strategic Investments

The Green Bank staff continues to work on a strategic fuel cell project expected to close this year on target with forecasts.

CGB Total

Table 5. CGB FY 2019 Progress to Targets

	Projects			Capital Deployed				Capacity	
Sector	**Closed**	**Target**	**% to Target**	**Closed**	**Target**		**% to Target**	**Closed**	**Target**
Infrastructure Sector	2,145	6,000	36%	$70,345,216	$168,000,000	42%	17.7	48.0	37%
Residential Sector	374	1,145	33%	$7,867,529	$26,910,855	29%	1.2	5.0	23%
Commercial, Industrial and Institutional Sector	9	73	12%	$4,226,644	$33,082,500	13%	1.2	10.6	11%
Other Strategic Investments	0	1	0%	$0	$15,000,000	0%	0.0	3.7	0%
CGB Total*	2,216	6,498	34%	$73,929,869	$223,917,500	33%	18.0	62.3	29%

** CGB Totals have been adjusted to avoid double counting RSIP projects using residential financing products and commercial solar lease projects using CPACE.*

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

CONNECTICUT GREEN BANK

Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP and CIO, Louise Venables, Senior Manager, Clean Energy Finance

CC: Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Dale Hedman, Managing Director of Statutory & Infrastructure Programs; Eric Shrago, Director of Operations, George Bellas, Vice President of Finance and Administration

Date: October 26, 2018

Re: Bridgeport Thermal Loop Project Update

Overview

The purpose of this memo is to provide an update to the Board of Directors on the status of a project to develop a district heating thermal loop in Bridgeport, Connecticut ("the Project"). The Connecticut Green Bank ("Green Bank") entered into a Loan Agreement with NuPower Thermal Bridgeport LLC ("NuPower") in November 2014 in which the Green Bank agreed to lend up to $427,000 to NuPower to support the strategic development of the Project. The terms of the Loan Agreement stated that each $1.00 advanced would fund approved third party expenses and would be matched by a $2.00 investment by NuPower.

Project Progress

NuPower has continued to develop the Project since the closing of the Loan Agreement. As a result, the Project now consists of two major components: (1) a 10 MW fuel cell project with a 20-year power purchase agreement ("PPA") with United Illuminating ("UI") and (2) a thermal loop utilizing the waste heat produced by the fuel cells.

In November 2017, the Connecticut Legislature passed legislation (Sec.264, PA 17-2, see Appendix 1) to further support district energy in Connecticut's urban locations. The legislation required that UI issue a request for proposals for a 20-year PPA for up to 10 MW of cogeneration to be supplied by a licensed thermal energy carrier. NuPower submitted a proposal that was selected by UI in April 2018.

NuPower and UI are currently finalizing the terms of a PPA that is expected to be completed by the end of October 2018, before submission in November to the Public Utilities Regulatory Authority ("PURA") for approval. PURA approval is expected to be completed within 60 to 90 days of receipt.

An important detail of the PPA is that it is based on the "cost of service" model, which permits the pass through of all expenses and a guaranteed return on capital that is typical of a utility contract. NuPower has begun due diligence with numerous parties that will provide both construction and permanent

funding for the Project. NuPower will be selecting and finalizing its funding in parallel with the PPA approval process so that it can begin construction upon receipt of PURA's approval of the PPA, which is expected in the first quarter of 2019.

NuPower has undertaken major development activities, such as selecting Doosan as the fuel cell provider, negotiating an EPC contract with Doosan, securing site control, and starting the interconnection process. NuPower is also in the process of securing an agreement with initial thermal loop customers that will use the waste heat from the fuel cell plant.

To date, NuPower has drawn down $155,204.86 of the commitment amount specified in the Loan Agreement.

Amendment to Loan Agreement

The Loan Agreement between the Green Bank and NuPower will be updated to reflect the status of the Project. The amendment to the Loan Agreement will not change substantial terms, such as the commitment amount or the requirement for NuPower to match every $1 advanced with $2 of its own funding. It will instead reflect details such as a clarification of eligible expenses, the circumstances in which NuPower is eligible for an advance, and the milestones and funding required to complete the PPA and thermal loop contracts.

Appendix 1: Sec.264, PA 17-2

Sec. 264. (NEW) (Effective from passage) (a) In furtherance of the Comprehensive Energy Strategy established pursuant to section 16a3d of the general statutes relating to the evaluation of district heating and thermal loops in high-density areas, on or before January 1, 2018, an electric distribution company serving customers located in a distressed municipality, as defined in section 32-9p of the general statutes, that has a population in excess of one hundred twenty-seven thousand, shall conduct a procurement for electricity and renewable energy credits from a combined heat and power system located in such municipality that (1) has a nameplate capacity of not more than ten megawatts, (2) is in a configuration that is compatible for use with a district heating system, as defined in section 16-258 of the general statutes, (3) is owned by a thermal energy transportation company, and (4) may include fuel cells. Such combined heat and power system shall be (A) procured by a thermal energy transportation company through a competitive bidding process, (B) in a configuration compatible for use with a district heating system, and (C) installed at a location that will maximize the efficient use of the thermal energy from the combined heat and power system by a thermal energy transportation company. The thermal energy produced by such combined heat and power system shall be subject to firm customer commitments to subscribe to thermal energy services from such thermal energy transportation company, as demonstrated by such thermal energy transportation company, for the term of the power purchase agreement entered into pursuant to this section. After reviewing any proposals submitted in response to such procurement, the electric distribution company may enter into a power purchase agreement with a thermal energy distribution company for the purchase of electricity and renewable energy credits for a period of not more than twenty years.

(b) No later than fifteen days after an electric distribution company enters into a power purchase agreement pursuant to subsection (a) of this section, the electric distribution company shall submit such agreement to the Public Utilities Regulatory Authority for review and approval. The authority shall evaluate such agreement and may approve such agreement if the authority finds that the agreement (1) complies with the requirements of this section, and (2) serves the longterm interests of ratepayers. The authority shall not approve any agreement supported in any form of cross subsidization by entities affiliated with the electric distribution company. A combined heat and power system acquired and built pursuant to a power purchase agreement entered into pursuant to this section shall not exceed a total nameplate capacity rating of ten megawatts in the aggregate. The electric distribution company may not, under any circumstances, recover more than the full costs of the agreement approved by the authority. The net costs of any such agreement, including costs incurred by the electric distribution company under the agreement and reasonable costs incurred by the electric distribution company in connection with the agreement, shall be recovered on a timely basis through a reconciling component of electric rates as determined by the authority that is nonbypassable when switching electric suppliers. Any net revenues from the sale of products purchased in accordance with any agreement entered into pursuant to this section shall be credited to customers through the same reconciling component of electric rates that is utilized to recover the costs of such agreement. Certificates issued by the New England Power Pool Generation Information System for any Class I or Class III source procured by an electric distribution company pursuant to this section may be (A) sold into the New England Power Pool Generation Information System renewable energy credit market to be used by an electric supplier or electric distribution company to meet the requirements of section 16-245a of the general statutes, so long as the revenues from such sale are credited to electric distribution company customers as described in this subsection, or (B) retained by the electric distribution company to meet the requirements of section 16-245a of the general statutes. In considering whether to sell or retain such

certificates, the company shall select the option that is in the best interest of such company's ratepayers, consistent with the procurement plan approved pursuant to sections 16-244c and 16-244m of the general statutes.

CONNECTICUT GREEN BANK

All-New Nissan LEAF®

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100% Electric

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$5000 Special

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Eligible customers can receive:

$5,000 rebate[3] off MSRP

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Up to $12,500 in Total Savings!

Additional state incentives may also be available![4]

Simply Amazing Nissan LEAF

More Range at an affordable price!

Up to 151 mile range[5] at a MSRP starting at $29,990

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Available ProPILOT Assist can make highway driving less stressful[7]
Allows you to pace with the car in front of you, maintaining a set distance, while helping keep you centered in your lane. Even through slight curves. Can come to a stop automatically, and resume, without driver intervention.

e-Pedal Mode, a more natural way to manage traffic.[6]
Accelerate or brake in traffic, using a single pedal, easing traffic congestion. Come to a complete stop and hold, even on steep hills, without the brake pedal.

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Standard Automatic Emergency Braking[8]
It can apply the brakes automatically to help you avoid frontal collision, or if unavoidable, help reduce the severity.

Join us in making a difference.

As part of our effort to accelerate electric vehicle transportation alternatives throughout the United States, Nissan North America, Inc. is offering eligible employees and rate payers of **Connecticut Green Bank** a special opportunity to purchase the all-new, 100% electric, Nissan LEAF®. With each qualified purchase, eligible customers can receive a $5,000 Fleetail Rebate off MSRP[3], plus a potential Federal tax incentive of up to $7,500.[4] State incentives may also be available![4]

How to get this great incentive:

Simply bring a copy of this flyer, both the front and back pages, along with your monthly electric bill or proof of employment to your participating Nissan dealership (**must be presented at the time of purchase**). This limited time offer expires 1/2/2019 and cannot be combined with other Nissan special incentives. Residency restrictions apply.[3]

See your local participating Nissan Dealer for complete details: NissanUSA.com/nissandealers

1 Based on cumulative sales data from Dec 2010 - April 2018.

2 2018/2019 LEAF starts at $29,990. S trim shown. Price is Manufacturer's Suggested Retail Price excluding destination charge, tax, title, license and options. Dealer sets actual price.

3 **ELIGIBILITY REQUIREMENTS AND OTHER RESTRICTIONS APPLY. PROOF OF ELIGIBILITY REQUIRED.** The $5,000 Nissan Fleetail Rebate off MSRP is available to current employees and customers of Connecticut Green Bank who reside in one of the following states: **Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont**. Must present to the participating Nissan dealer the following proofs of eligibility: (1) proof of current employment at Connecticut Green Bank or a copy of your current utility bill ; and, (2) a copy of both sides of this flyer. Available on purchase from new dealer stock. Down payment may be required. This incentive cannot be combined with any other Nissan special incentives. See dealer for details. Ends 1/2/19.

4 The incentives referenced are for informational purposes only. This information does not constitute tax or legal advice. All persons considering use of available incentives and additional perks should consult with their own tax or legal professional to determine eligibility, specific amount of incentives available, if any, and further details. The incentives and additional perks are not within Nissan's control and are subject to change without notice. Interested parties should confirm the accuracy of the information before relying on it to make a purchase. Residency restrictions may apply.

5 MY18 EPA range of 151 miles. Actual range may vary based on driving conditions. Use for comparison only.

6 e-Pedal: Monitor traffic conditions and use conventional brake as needed to prevent collisions. See Owner's Manual for safety information.

7 ProPILOT Assist cannot prevent collisions. Always monitor traffic conditions and keep both hands on the steering wheel. See Owner's Manual for safety information.

8 Automatic Emergency Braking cannot prevent all collisions and may not provide warning or braking in all conditions. Driver should monitor traffic conditions and brake as needed to prevent collisions. See Owner's Manual for safety information.

300 Main Street, 4th Floor, Stamford, CT 06901
T 860.563.0015
ctgreenbank.com

CONNECTICUT GREEN BANK

Memo

To: Members of the Connecticut Green Bank (the "Green Bank") Board of Directors

From: George Bellas

CC: Bryan Garcia, Brian Farnen, Bert Hunter, Eric Shrago

Date: October 19, 2018

Re: Results of annual financial audit of the Green Bank and the Green Bank 2018 draft CAFR and draft Federal Single Audit Report

---

Dear Board members:

Results of Annual Financial Audit:

Blum Shapiro and Company performed the annual financial audit of the Connecticut Green Bank for the fiscal year ending June 30, 2018. They presented the results of their audit to the Audit, Compliance and Governance Committee ("Committee") during its meeting held on October 10, 2018. I have included Blum Shapiro's presentation to the Committee in the Board materials. The audit itself went well with no material internal control weaknesses identified or material adjustments to the financial books and records recorded.

Minor adjustment remain pertaining to spelling, formatting, etc.

Green Bank 2018 draft CAFR:

I am enclosing the draft Green Bank 2018 Comprehensive Annual Financial Report ("CAFR") for your review. The major sections of the CAFR are as follows:

1. Financial Audit Section

2. Statistical Section

Financial Section:

This section contains Management's Discussion and Analysis of the results of operations for the current and prior fiscal years as well as the audited financial statements and related footnotes.

The financial statements themselves, comprised of the Statement of Net Position, the Statement of Revenues, Expenses and Changes in Net Position and the Statement of Cash Flows have been completed. The related footnotes have also been completed.

Statistical Section

The statistical section is broken out into two subsections:

Financial Statistics:

Financial Statistics are organized in tables as follows:

- Net Position by Component
- Changes in Net Position
- Operating Revenue by Source
- Significant Sources of Operating Revenue
- Outstanding Debt by Type
- Demographic and Economic Information
- Principal Employers for the State of Connecticut
- FTE's by Function
- Operating Indicators by Function
- Capital Assets Statistics by Function

Non-Financial Statistics:

The non-financial statistical section contains statistical data and narrative pertaining to the Green Bank's current programs. There is a table of contents in the front of this section for the reader's use. We have included a report on the non-financial metrics from Sustainability, an independent external reviewer. This report strictly pertains to the non-financial metrics included in this section of the CAFR.

Federal Single Audit Report

The Federal Single Audit Report is required to be issued in conjunction with a Federal grantee's issuance of the financial audit if certain thresholds are meet during the fiscal year pertaining to the disbursement of federal funds. During fiscal year 2018 the Green Bank met the threshold for reporting disbursements made under Federal ARRA and Department of Energy grants. The report contains a schedule of disbursements made for each federal grant received. No exceptions or adjustments were necessary based on this audit.

In conclusion I wish to thank our Board members for their effort in reviewing this document. Our goal is to provide readers with a comprehensive overview of the financial and programmatic activities of the Green Bank on an annual basis.

RESOLUTION:

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

WHEREAS, the Committee met on October 10, 2018 and recommends to the Board the approval of the proposed draft Comprehensive Annual Financial Report (CAFR) and draft Federal Single Audit Report contingent upon no further adjustments to the financial statements or additional required disclosures which would materially change the financial position of the Green Bank as presented.

NOW, therefore be it:

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

CONNECTICUT GREEN BANK

845 Brook Street
Rocky Hill, Connecticut 06067

300 Main Street, 4th Floor
Stamford, Connecticut 06901

T: 860.563.0015
F: 860.563.4877
www.ctcleanenergy.com

Memo

To: Connecticut Green Bank Board of Directors

From: Mackey Dykes, VP Commercial, Industrial, and Institutional Programs; Kim Stevenson, Director, Multifamily Programs

Cc: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Brian Farnen, General Counsel and CLO

Date: October 19, 2018

Re: C-PACE "Gap" Financing for Historic Cargill Falls Mill Redevelopment Project

---

Proposed Investment Summary

The previously approved C-PACE project at 58 Pomfret Street, Putnam, CT (the "Historic Cargill Falls Mill" or "HCFM"). The C-PACE project consists of an approximately 900 kW hydroelectric investment, which is part of a much larger redevelopment of an existing mill property into mixed-use residential and commercial space, including a significant set-aside for affordable units. The hydroelectric portion of the project is currently partially operational, with the larger 600 kW turbine having been placed in service in May 2017 and the smaller 300 kW unit expected to come online once final mill redevelopment work commences. Originally, the Connecticut Green Bank ("Green Bank") authorized $4,700,000 to fund the hydro project, first through a $2,350,000 investment per Deployment Committee approval on January 15, 2015 (executed via a financing agreement between the Green Bank and the project developers on March 11, 2015), and later through an increase of $2,350,000 to HCFM, per full Board of Directors ("Board") approval on March 3, 2016 and a subsequent amended and restated financing agreement executed on April 11, 2016. Pursuant to direction from the Board, the Green Bank then sold a senior tranche ($1,200,000) of its investment to Enhanced Capital later in 2016, and then reacquired that tranche in 2017 so as to retain full control of the C-PACE Benefit Assessment Lien ("BAL") as the project developers sought to navigate towards a full closing on the funds needed to redevelop the entire mill site.

At this point, after years of effort, staff is pleased to report that the full redevelopment of Cargill Falls Mill is moving towards closing, with principal sources of funds coming from the Connecticut Department of Housing ("DOH"), federal Urban Act dollars, state and historic tax credit equity investors, and developer equity. Of approximately $30,000,000 in total project costs, the developers have identified a $1.5 million gap that they have asked the Green Bank to finance. As the only debt in the project, staff recommends to the Board that the Green Bank expand its C-PACE investment in the project to fill this $1.5 million gap, which funding would be used for certain energy conservations measures (ECMs) that are part of the project (taking the total Green Bank investment to approximately $6.2 million, excluding accrued interest), to achieve the following significant benefits:

- Ensure this important affordable multifamily housing project includes high-quality, above-code energy conservation measures;
- Enhance the value of the Green Bank's existing hydro investment by creating sufficient onsite demand such that all hydro generation will be valued at "retail" rather than wholesale cost; and
- Protect the Green Bank's position with respect to our outstanding C-PACE loan by maintaining our role as the project's sole lender, now with significant overcollateralization of our position due to the broader $30 million investment into the property.

Redevelopment Project Overview

Previous Board updates have focused on the hydro portion of the redevelopment project, since that was the extent of the Green Bank's previous involvement. Updates regarding that work include:

- Since the larger hydro turbine came online in May 2017, it has generated over 1,200,000 kWh despite operating at less-than-full capacity to test the system and troubleshoot any issues
- The turbine has recently been taken offline to allow for upcoming underground "bifurcation" work that will allow the smaller turbine to be installed
- The combination of the two turbines will enable the entire system to capture significantly more river flow, making it likely that the hydro project will achieve, on average, its expected generation of 3,000,000 kWh per year
- Thanks to the operating experience gained over the past year, the project developers have also resolved outstanding issues with the Town of Putnam (the "Town"), including concerns regarding water flow over the falls, monitoring and data sharing, etc., which puts the project in an improved position to work with the Town as the broader redevelopment effort now moves forward

From a C-PACE savings-to-investment ratio ("SIR") perspective, the operating experience of the hydro project to-date also provides reassurance that, once fully operational, the project will continue to meet and exceed the statutory requirement that a C-PACE project must have an SIR >1.0x:

Annual Generation (kWh)	3,000,000
Value of Utility Offset (per kWh)	$0.15
ZREC Contract	$94.40
Total per kWh Value (Yrs 1-13)	$0.24
Total per kWh Value (Yrs 14-25)	$0.15
Total Hydro Value	$14,931,600
Original C-PACE Principal	$4,700,000
Accrued Interest (estimated)	$940,000
New Money	$1,500,000
Total C-PACE Loan	$7,140,000
Interest Rate (p.a.)	6.50%
Term (yrs)	25
Total Payments Due	($14,540,708)
SIR	1.03

The above analysis includes accrued interest and assumes no increase in retail electricity rates or any value associated with the proposed energy conservation measures, so it is in fact a conservative viewpoint, which nonetheless could serve to justify the additional Green Bank investment on a standalone basis. Prior to closing on the additional $1.5 million of financing, Green Bank shall work with a technical reviewer to confirm the eligibility of the ECMs for purposes of including them in the financed project amount and in the SIR calculation.

That said, the broader redevelopment effort is independently well-aligned with Green Bank priorities. An 82-unit project designed to provide workforce housing in the state's "quiet corner," the 14 redeveloped mill buildings will also include 30 units restricted for tenants earning less than 80% of Area Median Income. The project will include a number of best practices from an energy efficiency perspective, as highlighted below:

Steven Winter Associates, Inc.
Improving the Built Environment Since 1972

10/20/2017

Mr. Tim Sheldon, The Lofts at Cargill Falls Mill

RE: Cargill Falls Mill Energy Modeling & Efficiency Measures

Dear Mr. Sheldon,

Steven Winter Associates, Inc. (SWA) completed the energy analysis for Cargill Falls Mill historic multifamily re-development project in Putnam, CT. A sample set of units were modeled using the RESNET approved sampling protocol and REM/Rate modeling software to represent each unique unit type in the project. The energy models were recently updated to include the hydro-power generated on site and specifications set forth in the bid set dated July 11, 2017. Analysis shows that all of the modeled apartments are achieving a predicted ≤50 HERS Index (including renewable energy) and incorporate the following high-efficiency, high-performance energy measures:

- Low-flow plumbing fixtures & >R-3 DHW pipe insulation
- Unitary heat pump water heaters (3.24 UEF)
- Ductless VRV heating/cooling system (COP 3.5 - 4.6) with integrated high-efficiency ERVs to provide balanced whole-house mechanical ventilation (ASHRAE 62.2-2013)
- Hydro-power plant generating renewable energy (900 kW total)
- Fiberglass batt above grade wall insulation (R-21)
- Tapered rigid board roof insulation (R-30)
- All windows to be replaced with argon-filled aluminum windows
- All in-unit appliances will be ENERGY STAR certified
- 100% LED lighting
- Units will be required to meet strict compartmentalization air leakage testing of < 0.25 CFM/ft² of enclosure; to be verified by licensed HERS rater at project completion

Thank you,

Carmel Pratt
Sustainability Consultant
61 Washington St. Suite 2
Norwalk, CT 06854
203.857.0200 x302
cpratt@swinter.com

As reflected in the Steven Winter letter, the projected HERS rating for the property will be ≤50 on the HERS Index. From a high-level perspective, HERS works as follows:
A certified Home Energy Rater assesses the energy efficiency of a home, assigning it a relative performance score. The lower the number, the more energy efficient the home.

The U.S. Department of Energy has determined that a typical resale home scores 130 on the HERS Index while a standard new home is awarded a rating of 100.

- A home with a HERS Index Score of 70 is 30% more energy efficient than a standard new home
- A home with a HERS Index Score of 130 is 30% less energy efficient than a standard new home[1]

The performance of these energy conservation measures will be monitored over the life of the C-PACE loan via WegoWise or another Green Bank-approved platform, per the summary of key terms appended to this memo as Exhibit A.

The general contractor for the redevelopment project is Haynes Construction[2] of Seymour, CT. Haynes is a 50+-year old company with deep experience in the multifamily sector, having built affordable housing for nonprofit groups (including more than 100 projects and approximately 5,000 units completed to-date). Their work will be fully bonded and subject to a guaranteed maximum price ("GMP") that will be locked as a condition precedent to closing, pursuant to standard DOH requirements.

Capital Stack
The Green Bank's investment in this project will eventually constitute approximately 20% of the overall redevelopment capital stack:

Investor Member Federal HTC Equity	4,968,059
State HTC Loan	6,426,691
Sponsor Equity	380,341
Energy Rebates	230,000
CT Green Bank First Mortgage	6,250,000
DOH Champ 2nd Mortgage	5,000,000
Urban Acts Funds	2,850,000
DECD Brownfield Funds	500,000
Deferred Developer Fee	3,755,172
Accrued Interest	1,083,071
Bridge Loan	6,600,000
Repayment of Bridge Loan	(6,600,000)

Although the DOH funds are listed as a mortgage in the breakdown above, the Green Bank's loan is the only "hard" debt in the capital stack, as the repayment of DOH's investment comes only out of available cash flow. Furthermore, the "bridge loan" being provided by Octagon Finance[3] is truly short-term in nature, used solely to initiate construction in the near-term so the project can meet partial completion targets in mid-2019 necessary to secure federal tax credit equity at an attractive rate (as the same equity will otherwise increase in price later in 2019 as a result of 2017 federal tax reform legislation).

With respect to the rest of the capital stack, Enhanced Capital will be purchasing the federal historic tax credits, Eversource Energy will be purchasing the state historic tax credits, the DOH and Urban Act

[1] Taken from https://www.resnet.us/hers-index
[2] https://haynesconstruction.com/
[3] https://octagonfinance.com/

funds will close alongside the "new money" from the Green Bank, and the DECD funds have already been fully expended as part of a successful environmental remediation of the property.

From the Green Bank's perspective, the only other potentially meaningful piece of the capital stack is a possible $500,000 Housing Tax Credit Contribution ("HTCC") award that the project may be able to receive from the Connecticut Housing Finance Authority when such funding again becomes available (as it does on an annual basis). If HTCC funding is received, the Green Bank's new money contribution to the overall capital stack will be reduced dollar-for-dollar with respect to those HTCC funds, as further outlined in the attached summary of key terms.

Risks and Mitigants

Hydro Project Risk

- Completion: hydro project completion risk is low, given that one turbine is already operational, all other required equipment is already fabricated / on site, and the funds needed to bring the rest of the system online are secured and in-hand
- Performance: while there will always be uncertainty about flow, the core operational risk of the project is now much lower than it was when staff last presented this project to the Board, given more than a year of operating history and successful generation over that period
- Contractual, etc.: the project's ZRECs are secured, Eversource has made payment for both ZREC and net metering revenue over the past year, and all other off-take of generation will be onsite and built into tenants' rents as the redevelopment project comes online

Redevelopment Project Construction Risk

- The general contractor for the project has significant experience with projects of this nature. Their contract will include a performance bond. Furthermore, the contract's GMP will ensure that, come closing, the developer will bear no further pricing risk associated with the project (which is especially important given the unknowns of mill redevelopment projects). From a risk perspective, therefore, the major concern is timing, in that project delays could increase the project's cost of tax equity and throw sources and uses out of balance. To help obviate that risk, the developers are starting work early using proceeds from a bridge loan, and, if such a delay is indeed encountered, the likely result will be a further contribution of developer equity and/or the need to raise subordinate debt. Regardless, the Green Bank will maintain its senior secured position with respect to the property

Lease-Up / Operational Risk

- The project developers have conducted numerous market studies and "comparables" analyses to support their lease-up projections with respect to both the 82 residential units as well as the commercial space they expect to operate at the redeveloped mill site. Green Bank diligence suggests these projections – and the associated estimates of net operating income – are reasonable. Nonetheless, debt service coverage with respect to the Green Bank's loan is fairly thin, when based only on real estate revenues and expenses, at about 1.10x. However, when including hydro revenue streams, such as ZREC income (and even when excluding ancillary potential dollars such as those that might result from forward capacity market participation), the project's "base case" DSCR increases to near 1.60x, leaving meaningful protection for downside outcomes without threatening repayment of the Green Bank's loan

Conclusion

It is fair to say that this project has had its challenges, and the Green Bank – through flexibility, creativity, and active intervention – has helped the developers see it through so far. Now, there is the opportunity for the Green Bank to benefit from its commitment to this project. Not only is this the country's first PACE-secured hydro project, but upon completion it will support a mixed-use,

mixed-income mill redevelopment that will help revitalize downtown Putnam and provide much-needed affordable housing in a region of the state where high-quality workforce housing is in short supply. While project risks clearly remain, many have already been mitigated, others are reasonably hedged at this point, and this upcoming closing with DOH and other partners should put the redevelopment effort on the path to success. Thus, subject to the Board's approval, Green Bank staff looks forward to filling the remaining gap in the project's capital stack, continuing to serve as the senior secured debt provider to the project, and achieving closing this fall.

Resolutions

WHEREAS, the Board of Directors ("Board") of the Connecticut Green Bank ("Green Bank") previously approved a C-PACE benefit assessment with a not-to-exceed amount of $4,700,000 to Historic Cargill Falls Mill, LLC ("HCFM"), the property owner of 58 Pomfret Street, Putnam, CT to finance the construction of specified clean energy measures (the "Project") in line with the State's Comprehensive Energy Strategy and the Green Bank's Strategic Plan;

WHEREAS, the Project is part of a larger property redevelopment effort (the "Mill Redevelopment") that requires gap financing in the amount of $1,500,000 to achieve closing on approximately $30,000,000 in total funds;

WHEREAS, the Mill Redevelopment includes numerous energy conservation measures that align with the goals and priorities of the Green Bank's multifamily housing program;

WHEREAS, the Green Bank continues to find that the Project will enjoy a savings-to-investment ratio greater than 1.0x, as required by statute; and

WHEREAS, the Green Bank now seeks to amend its outstanding C-PACE financing agreement ("Financing Agreement") with HCFM to provide up to $1,500,000 in new money for the Mill Redevelopment effort, inclusive of finalizing the existing Project work.

NOW, therefore be it:

RESOLVED, that the President of the Green Bank and any other duly authorized officer of the Green Bank is authorized to execute and deliver an amended Financing Agreement in a total amount not to exceed the sum of (i) the existing C-PACE benefit assessment, plus any and all interest accrued, plus (ii) $1,500,000, with terms and conditions consistent with the memorandum submitted to the Board dated October 19, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 180 days from October 26, 2018; and

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

Submitted by: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Mackey Dykes, VP Commercial, Industrial, and Institutional Programs; Kim Stevenson, Director, Multifamily Programs

Exhibit A
Summary of Key Terms

[REDACTED]

Attachment 1
Anticipated ECMs

[REDACTED]

1 MW Hydroelectric Project

Upper Collinsville Dam

Farmington River – Town of Canton

Investment Memorandum & Due Diligence Package

October 26, 2018 – Board of Directors

Document Purpose: This document contains background information and due diligence on the Upper Collinsville Dam 1 MW Hydroelectric Project and the stakeholders involved: Canton Hydro LLC, Wasserkraft, Concrete Contracting Construction Inc., The Provident Bank, BDC Capital / CDC New England, Town of Canton, Connecticut's Department of Energy and Environmental Protection ("DEEP"), and Eversource. This information is provided to the Board of Directors for the purposes of reviewing and approving recommendations made by the staff of the Connecticut Green Bank.

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

Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP and CIO

CC: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Brian Farnen, General Counsel and CLO; Mackey Dykes, Vice President, Commercial, Industrial and Institutional Programs

Date: October 26, 2018

Re: Financing for 1 MW Hydroelectric Facility

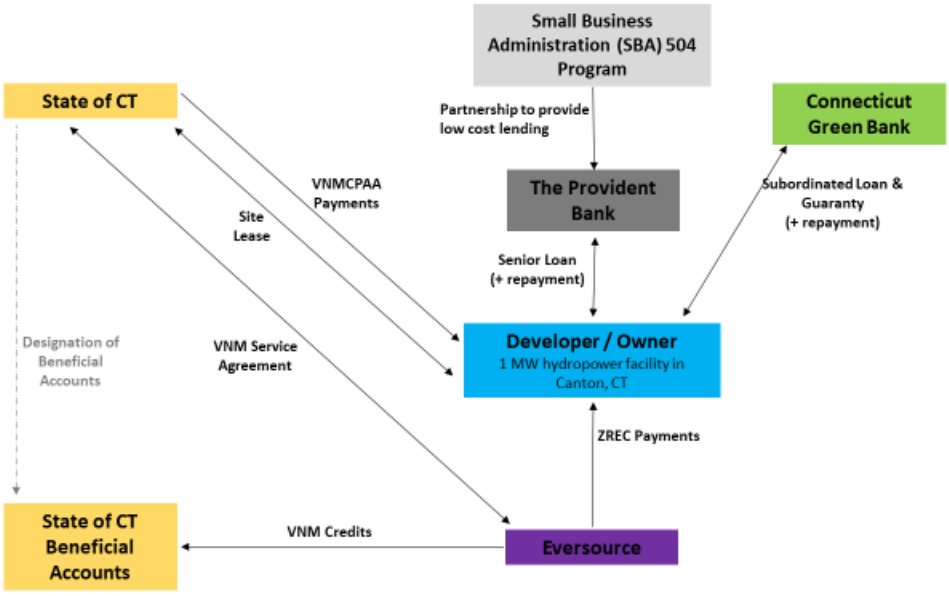
Investment Summary

Staff is bringing forward a proposal for the Connecticut Green Bank ("Green Bank") to finance through construction and operation a 1 MW hydroelectric facility located at the Upper Collinsville Dam ("Dam"), on the Farmington River, in Canton, Connecticut (the "Project"). The proposed not-to-exceed $1.2 million subordinate loan and $500,000 limited guaranty from the Green Bank is leveraged by an approximately [redacted] senior loan from The Provident Bank ("Provident"), a [redacted] in-kind contribution from equipment supplier WWS Wasserkraft GmbH ("Wasserkraft"), and [redacted] in equity from Canton Hydro LLC, the project's developers (the "Developer"). State of Connecticut owned buildings through the Department of Energy and Environmental Protection ("DEEP") will benefit from the electricity generated by the hydroelectric facility through the state's Virtual Net Metering ("VNM") program.

Background and Purpose

The Dam was originally constructed for hydropower and generated electricity for the former Collins Company factory but had long since ceased generation when the firm closed in 1966. With grant assistance from the Connecticut Clean Energy Fund (the Green Bank's predecessor organization), the Town of Canton ("Town") commissioned a pre-feasibility study to explore the potential for redeveloping the dam to generate clean, renewable hydroelectricity and provide other benefits to the Town and region. The pre-feasibility study concluded that the hydrologic characteristics of the river would support a turbine design flow of approximately 820 cfs. Through a competitive request for proposals, the Town partnered with the Developer. The Dam and water rights are owned by the State of Connecticut and will be leased to the Developer over a 30-year period (with potential extensions at that point), and designated state-owned buildings will benefit from the electricity generated by the hydroelectric facility through the state's Virtual Net Metering ("VNM") program.

The following schematic describes the structure of the Project including proposed financing, which is further described in this memo below.



Project

The Project will employ a Kaplan turbine supplied by Wasserkraft, an Austrian company with longstanding experience in the construction of hydroelectric plants smaller than 10MW per unit. In addition to supplying the main equipment, Wasserkraft will act as the turnkey solution provider; and will supervise and manage the construction company Concrete Contracting Construction Inc. and all parties involved in the project. The turbine has a rated nameplate capacity of 1 MW and an expected average annual production of 4.3 GWh based on the last 20 years of United States Geological Survey ("USGS") data. In addition, a Denil Fishway passage to support the migration of fish into the Farmington River will be installed along with a new low-level fish guidance barrier to prevent fish swimming towards the primary spillway and guide them directly to the entrance of the upstream fish passage. Figures 1 and 2 below provide additional detail of the proposed installation and turbine.

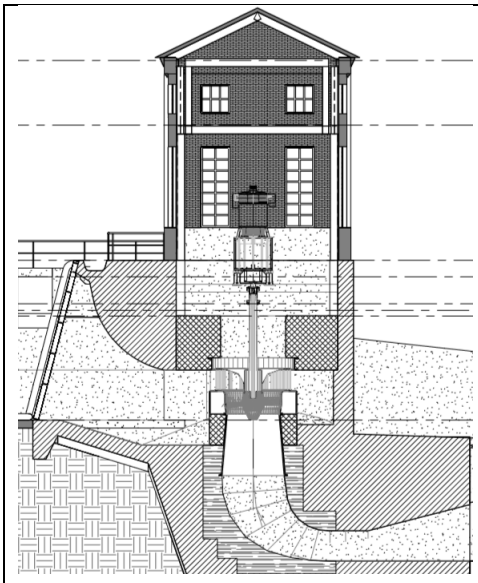


Figure 1. Cross section of proposed installation.

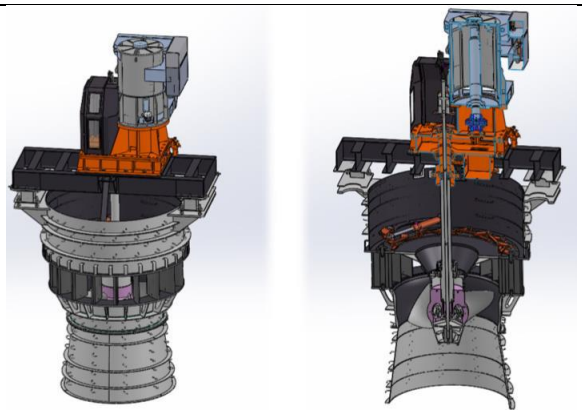


Figure 2. Wassercraft, Model WWS-KSA2100-4-158-G, vertical shaft, Kaplan open flume turbine.

Key Milestones – Achieved and Projected

The following summarizes the Project milestones achieved to date:

- A 30-year Site Lease and Virtual Net Metering Credit Purchase Agreement ("VNMCPA") with DEEP is in final negotiations;
- Executed 15-year Zero Emission Renewable Energy Credits ("ZREC") Contract with Eversource;
- Section 401 Water Quality Certification from DEEP has been granted;
- A System Impact Study by Eversource for the interconnection of the Project has been completed and an Interconnection Agreement is ready for execution;
- The previously issued Federal Energy Regulatory Commission ("FERC") license has been reinstated (with amendments for a new turbine and other mitigation measures including the construction of fill and eel passage facilities) and transferred to the Town of Canton, Connecticut as licensee; and
- A Programmatic Agreement has been signed with the State Historic Preservation Office ("SHPO").

Though tremendous progress has been completed to date, the following key milestones remain to be completed:

- The Developers and Town are in the process of coming to an agreement on property taxes and site access prior to transferring the FERC license to the Developer;
- Final engineering and Town permits;

- Construction finance and long-term financing arrangements (the purpose of staff's proposal herein); and
- Construction, which includes equipment order/delivery, site mobilization, installation and interconnection. Site mobilization is expected to begin once financing is in place, and the Developers anticipate a construction period of 10-12 months.

Proposed Financing

The entire project is expected to cost about $6.4 million to develop, with Green Bank's proposed permanent sub debt contribution (again, not-to-exceed $1,200,000) therefore leveraged at about 4.5x via a combination of Developer equity and senior debt investment into the Project. The entire capital stack for the project will closely reflect the following breakdown:

[redacted]

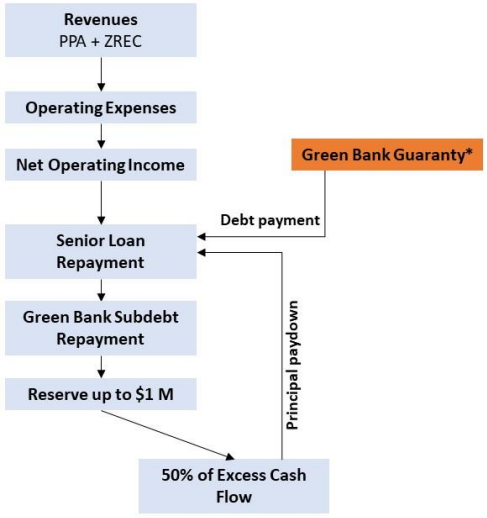
Green Bank would be participating in the Project's capital stack in a subordinate position to a [redacted] term loan from Provident, as well as an approximately [redacted] note that a local community development lender will fund upon construction completion ("Senior Loans"). Senior Loans are supported by the US Small Business Administration ("SBA") 504 program. The details of the Senior Loans are presented in the term sheet presented hereto as Exhibit A. Provident and Green Bank are requiring Developers to fund, out of excess cash flow, a debt service reserve ("Reserve") up to a $1 million maintained balance, to support low flow years.

Assuming the Board approves the Green Bank's participation in the Project, Green Bank staff recommends providing a subordinate loan in an amount not to exceed $1.2 million and a limited guaranty to the providers of the Senior Loans in an amount not to exceed $500,000 ("Guaranty") in the event of low-flow years early in the project life, before the Reserve is fully funded. The following would be the general terms of Green Bank's sub debt loan:

- 15-year term;
- 8% interest rate. If not fully amortized by year 15, rate on remaining principal outstanding increases to10%;
- Mortgage style amortization; and,
- Green Bank will take a security position in all project assets but with a full standstill behind the Senior Loans.

Green Bank's unfunded balance sheet Guaranty can be called upon in the event there is not enough cash flow or Reserves to pay debt service on the Senior Loans. The Guaranty obligation decreases as the Reserve is built up. Green Bank proposes to charge a 3% per annum fee for the Guaranty. If the Guaranty is ever called upon, it effectively becomes capitalized into the Green Bank loan. For further clarity, a schematic of the waterfall is presented below, and a summary of Green Bank's terms is presented in Exhibit B.

Project's Waterfall



* Guaranty called upon if there are insufficient reserves to make Senior Loan payments

Risk

The maximum exposure (including the Green Bank's Guaranty) will be an amount not to exceed $1,700,000.

Risk	Risk Level	Mitigating Factor
Construction and Performance Risk	Medium	As described in greater detail in the "Project Partners" section, the parties involved in the Project include accomplished engineers, developers, project managers and owners of hydro facilities who, between them, have experience with hydro projects locally and internationally.
Operational Risk	Medium	The Developer will have a long-term operations and maintenance contract with Wasserkraft, which has already been negotiated. It includes daily remote inspection, weekly onsite supervision, trash rake cleaning and annual service. Green Bank will also require Developers to have appropriate property, commercial liability and umbrella insurance.
Generation Risk	Low	Generation estimates used in the financial model are based on 31 years of water flow data at the Farmington River. The financial model has been stressed under worst case scenario (that is, using the worst series of water flow years) and debt service coverage is still met. Under the ZREC and VNMCA contracts, the Developer does not have any obligations or penalties if there is a shortfall in the amount of electricity generated.
Offtaker risk	Low	The Project's off-taker is the State of Connecticut under the VNMCA and Eversource under the ZREC, both investment grade entities.

Change in VNM Regulations	Low	The VNMCA includes provisions so that if there were to be a change in VNM regulations, which staff believes a low risk, especially for existing projects, the parties will agree to use best efforts to restore the economic benefits of the VNMCA as originally intended.
Equipment Malfunction	Medium	Wasserkraft is providing a 5-year warranty on the equipment and a 2-year workmanship warranty. Spare parts for items that have most wear and tear will be stored locally in Collinsville near the plant.

Ratepayer Payback

How much clean energy is being produced (i.e. kWh over the projects lifetime) from the project versus the dollars of ratepayer funds at risk?

The project is projected to generate 4,325,000 kWh of electricity, annually. Given an investment not to exceed $1.7 million (including the Guaranty) the following summarizes the objective function for the life of the project.

	15-year Green Bank loan	**30-year VNMC**
kBtu:	221,362,740	442,725,480
Ratepayer funds at Risk (not to exceed):	$1,700,000	$1,700,000
kBtu / ratepayer dollar at risk	$130.21	$260.43

Capital Expended

How much of the ratepayer and other capital that Green Bank manages is being expended on the project?

Total capital expended would be an amount not to exceed $1,700,000, inclusive of an unfounded Green Bank balance sheet Guaranty in an amount not to exceed $500,000.

Key Project Partners

Canton Hydro LLC (Developer)

The Developer's principal partners, Claus Maier and Armin Moehrle, have more than 20 years of engineering and project development experience. They co-developed two hydroelectric projects in Vermont: i) Caron Zero: a 350kW plant commissioned on September 2015 with two Kaplan turbines at 13 and 17 feet of head; and, ii) Hoosic River Hydro: a 500 KW plant commissioned in November 2017. Canton Hydro was chosen by the Town to develop this project through a competitive bid process.

Wasserkraft

Wasserkraft is an Austrian company with over 30 years of experience in the construction of small (less than 10 MW) hydroelectric power plants along with the design and assembly of Kaplan turbines, Francis

turbines and Pelton turbines. They provide complete solutions from project planning to implementation and operations and maintenance. Wasserkraft turbines are known for their high efficiency and compact, easy-to-install and low-maintenance design. A reference list of commissioned Kaplan turbines is available in the following link: http://www.wws-wasserkraft.at/en/referenzen.html/0

Concrete Contracting Construction Inc

Concrete Construction Inc.'s staff and owners have over 23 years of experience in concrete, excavation, foundation, rock chopping, shoring, retaining walls, sea walls and rip wraps in New York City and Westchester County. Filip Lala, one of the company's owners, also owns a company called Hydropower Plan Construction in Albania, which has developed, built and owns 5 hydropower plants in Albania, Dominican Republic and Ecuador. Green Bank staff is in the process of finalizing its diligence on this company, and completing that diligence will be required prior to closing.

Financial Statements

How is the project investment accounted for on the balance sheet and profit and loss statements?

The proposed subordinate loan from the Green Bank will result in a decrease in Unrestricted Cash on the Green Bank's balance sheet and an equivalent increase in promissory notes receivable. If the Guaranty were ever to be called upon it would similarly result in a decrease in Unrestricted Cash on the Green Bank's balance sheet and an equivalent increase in promissory notes receivable.

Conclusion

The development of small hydro in Connecticut continues to face its challenges, but the upside potential associated with this Project is significant. The Town and State have been working on the hydropower potential at the Dam for nearly a decade. Efforts to develop this project include drafting of the *Collinsville Renewable Energy Promotion Act* (H.R. 316; Pub.L. 113–122), a U.S. public law that was introduced into the 113th United States Congress, which was signed into law by President Barack Obama on June 30, 2014. The bill allows the Town to take over the lapsed FERC licenses to refurbish two old local dams. In addition, this would be the first project with DEEP under the state's VNM program, with documentation serving as a model to replicate across other state buildings with solar and other clean energy technologies. The learnings from this Project should accrue to the benefit of those subsequent state VNM projects, with positive implications for the Green Bank and ratepayers. Finally, it is worth keeping in mind that this project will generate nearly 4.5 million kWh of clean energy a year (equivalent to about 515 residential solar systems), which is 4.5x more clean energy generated than the Meriden Hydro project with a lower investment and overall participation required by the Green Bank, representing meaningful progress and learning from our first "stand-alone" (that is, non-C-PACE secured) hydro project to our second. Subject to the Board's adoption of the attached resolutions, Green Bank staff looks forward to finalizing financing arrangements with all relevant parties.

Resolutions

WHEREAS, in accordance with (1) the statutory mandate of the Connecticut Green Bank ("Green Bank") to foster the growth, development, and deployment of clean energy sources that serve end-use customers in the State of Connecticut, (2) the State's Comprehensive Energy Strategy and (3) Green Bank's Comprehensive Plan for Fiscal Years 2015 and 2016 (the "Comprehensive Plan"), Green Bank continuously aims to develop financing tools to further drive private capital investment into clean energy projects;

WHEREAS, Canton Hydro, LLC ("Developers") was awarded exclusivity by the Town of Canton to redevelop a 1 MW hydroelectric facility located at the Upper Collinsville Dam ("Dam"), on the Farmington River, in Canton, Connecticut (the "Project") and has requested financing support from the Green Bank;

WHEREAS, Green Bank staff recommends that the Green Bank Board of Directors ("Board") approve subordinate debt financing in an amount to exceed $1,200,000 along with an unfunded guaranty, in an amount not to exceed $500,000 to support the Project.

NOW, therefore be it:

RESOLVED, that the Green Bank Board of Directors hereby authorize staff to execute definitive documentation materially based on the term sheet and the terms and conditions set forth in this due diligence package dated October 26, 2018 for financial support in the form of a subordinate debt financing in an amount not to exceed $1,200,000 and a guaranty in an amount not to exceed $500,000;

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

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

845 Brook Street
Rocky Hill, Connecticut 06067

300 Main Street, 4th Floor
Stamford, Connecticut 06901

T: 860.563.0015
F: 860.563.4877
www.ctcleanenergy.com

CONNECTICUT GREEN BANK

Connecticut Green Bank Solar PPA Program Updates

Due Diligence Package

October 19, 2018

Document Purpose: This document contains background information and due diligence on the Connecticut Green Bank Solar PPA Program, in partnership with Inclusive Prosperity Capital, Inc. and other potential PPA sponsors through financing arrangements described herein. This information is provided to the Connecticut Green Bank Board of Directors for the purposes of reviewing and approving recommendations made by the staff of the Connecticut Green Bank.

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

Program Qualification Memo

To: Connecticut Green Bank Board of Directors

From: Laura Fidao, Senior Manager; Bert Hunter, EVP & CIO

Cc: Bryan Garcia, President & CEO; Mackey Dykes, VP, C I &I; Brian Farnen, General Counsel

Date: October 19, 2018

Re: Connecticut Green Bank Solar PPA Program Updates

Purpose

The purpose of this memo is to request approval from the Connecticut Green Bank ("Green Bank") Board of Directors (the "Board") to confirm the authority of the Green Bank to participate in various financing and development roles with respect to commercial solar photovoltaic ("PV") PPA projects within Connecticut – specifically, roles that the Green Bank has played at various times in the past and now would like to continue to operate across, for the benefit of both the Green Bank and the Connecticut market. In the past few years, as the commercial solar sector has evolved more generally, there have been new entrants into the commercial solar market in Connecticut who can contribute to financing and developing projects, including – just for the most "close to home" example – the Green Bank's recent spin-out entity Inclusive Prosperity Capital, Inc. ("IPC"). IPC in turn, by means of its own growth strategy and partnership formations, is attracting additional financing and development players into Connecticut, such as Sunwealth Power, Inc. ("Sunwealth"), a Massachusetts-based commercial solar developer who can bring development capital, term financing, and tax equity to a diverse array of small projects with unconventional credit profiles[1].

As the market develops and benefits from new players who add liquidity, expertise, and options for customers, the role of the Green Bank necessarily changes away from (a.) having to be a foundational player that sets and communicates out a specific financing structure in order to move projects forward and towards (b.) being a "bridge" player that leverages ratepayer capital through multiple structures and platforms in order to continue to drive access to capital and cost savings to customers, as the market builds momentum and scales towards fully private capital solutions. Importantly, the Green Bank continues to develop a strong pipeline of commercial solar PPA projects in this evolving market, due to institutional knowledge derived over time, as well as a network of relationships with developers, customers, and key local players who facilitate project origination.

With the ability to determine, based on project fundamentals, partner strengths, and market conditions, how the Green Bank ultimately participates in specific projects and fund structures (e.g. whether via (i.) providing development and construction capital, or (ii.) providing term financing in the form of either debt or equity to projects owned by a 3rd party platform (e.g. IPC or Sunwealth)), the Green Bank can optimize the use of ratepayer funds for leveraging private capital and developing quality projects to benefit local communities.

[1] https://www.sunwealth.com/

Staff is thus seeking approval to continue to deploy capital towards commercial solar PV PPA projects in Connecticut, in amounts in line with annual budgetary and financial planning limits but with an overall not-to-exceed amount across development, sponsor equity, and term debt investments of $15 million, in form and structure in line with financing roles that the Green Bank has played in the past – specifically:

1. Development capital;
2. Construction financing;
3. Financing a 3rd party ownership platform (e.g. IPC or Sunwealth), in the form of sponsor equity and/or debt.

The participation and financing scenarios above give rise to various value streams and benefits to the Green Bank – for example, providing development capital to a project that is then purchased by a 3rd-party ownership platform gives the Green Bank an upfront income/liquidity boost, whereas providing term equity or debt provides a stream of cash flows over time. The following sections herein further detail those considerations, in addition to outlining parameters within which Green Bank staff will operate when determining how best to deploy capital for commercial solar PV projects in Connecticut.

Background and Context

The Green Bank has successfully run two commercial solar PPA funds, CT Solar Lease 2 LLC ("SL2") and CT Solar Lease 3 LLC ("SL3"), through which the Green Bank previously developed and now continues to own and operate projects via an ownership platform that was capitalized by a combination of ratepayer funds and 3rd-party capital providers. In addition, and most recently, the Green Bank entered into a sourcing and servicing arrangement with Onyx Renewable Partners ("Onyx"), under which the Green Bank has developed projects and then sold those projects into an Onyx-owned ownership platform. The following table summarizes the number and capacity of projects deployed into each of those fund structures, along with projects that are currently in development with the Green Bank but not yet designated for a final financing structure:

	# of Projects	Total Capacity (MW)
SL2 (Green Bank owned)	53	9.70
SL3 (Green Bank owned)	31	5.75
Onyx	14	9.41
Currently in development	19	3.33

With the addition of new entrants and evolving market dynamics, as summarized in the "Purpose" section above, projects currently in development represent strategic assets that the Green Bank can monetize via different financing structures and ownership vehicles as the Green Bank deems to be in the best interest of both the Green Bank itself and the broader market, as dictated by project fundamentals, partner strengths, and market conditions. The ability to monetize projects without the restrictions of a single financing structure means that the Green Bank can continue to develop a pipeline of projects, to the benefit of both the Green Bank and the development / financing ecosystem that we are working to support. It should also be noted that as the commercial solar PV market transitions from a net metering and ZREC-LREC incentive policy, that the Green Bank having a financing product in place will assist the market in its transition to a tariff-based structure.

From both the customer and project origination perspective, given the Green Bank's strong presence in the Connecticut commercial-scale solar market, it makes sense for the Green Bank to continue to originate commercial PPA projects in partnership with our existing, local developer base, as well as new market entrants attracted by the Green Bank's ability to accelerate growth in this market. This "distributed" partnership approach, with local developers at the top of the funnel, larger developers and financiers at the bottom of the funnel, and the Green Bank intermediating in the middle, results in both localized economic development and – via competition – better terms for customers resulting in lower energy costs.

Parameters for Financing 3rd-Party Ownership Platforms

Green Bank staff requests approval for the Green Bank to provide term financing to support Connecticut projects developed under 3rd-party owned financing structures. An example would be the Green Bank providing term debt into a fund structure where that Green Bank debt sits alongside (or as back-leverage to) 3rd-party sponsor equity, 3rd-party tax equity, and potentially other 3rd-party debt in a financing vehicle that is owned by a 3rd-party (e.g. IPC or Sunwealth).

Green Bank staff has expertise in structuring term financing this way, as it is the type of investment that the Green Bank has done before (most specifically via the term debt authority embedded in our Onyx Agreement, further discussed below), and the Green Bank's position in this role represents a stepping stone in further market evolution towards fully private capital solutions (i.e. the market has evolved to the point where 3rd-party sponsors are willing to own the types of underserved and unconventional credits typically served by the Green Bank, but the fund-level economics still need a boost from the Green Bank in order to deliver project savings to the customers).

Capital deployed under this construct would be subject to the following terms:

- **Investment Type**: Debt (likely) or Equity (opportunistically);
- **Investment Return Profile**: An investment IRR not less than Green Bank return requirements across comparable investments (e.g. a C-PACE equivalent note yielding a C-PACE equivalent rate) nor more than a private investment in a similar facility given the risk-return expectations of the project portfolio;
- **Investment Risk Profile:** Underlying security, cashflow coverage, collateral, or otherwise equivalent to Green Bank risk requirements across comparable investments (e.g. a C-PACE equivalent IRR and structure carrying a C-PACE equivalent [over]collateral profile);
- **Investment Amount:** Anticipated to constitute no less than $5 million of the total not-to-exceed amount of $15 million in new money authorized herein, subject to budget constraints.

Parameters for Development Capital and Construction Financing

Whether the Green Bank is developing a project and has not yet committed to the final financing/ownership structure for that project, or whether the Green Bank is providing development capital and construction financing to a project with the intent of selling that project fully to a 3rd-party owned financing structure, the Green Bank may find it beneficial (both with respect to its own target returns and/or liquidity needs and broader market development) to deploy capital on a short-term basis in order to develop a project to the point that it can be monetized one way or another.

Green Bank staff therefore requests continuing authorization, pursuant to the Board approvals most recently granted at the Board's August 21, 2018 meeting, for the Green Bank to maintain its ability to deploy short-term capital for development and/or construction purposes. An example of how this works in practice is the relationship between the Green Bank and Onyx, who have enjoyed a sourcing and servicing partnership since February 2017. Under the Commercial Solar Project Sourcing & Servicing Agreement (the "Onyx Agreement"), the Green Bank originates commercial PPA projects and provides continuing C-PACE related administrative services for C-PACE secured PPA projects. The Onyx Agreement was set to expire on September 30, 2018; however, due to its success, the parties are in the process of extending it by an additional year, to September 30, 2019. Under this extension, Onyx will finance commercial PPA projects originated by the Green Bank that are greater than 500kW AC and meet a defined hurdle IRR in exchange for agreed upon sourcing and referral fees. By way of reference, the Green Bank has, to date, earned more than $400,000 in sourcing fees associated with the first 9 MW+ of projects originated under the Onyx Agreement.

Under this approach, projects that do not fall into the Onyx ownership structure will instead be monetized by another 3rd-party ownership structure, as contemplated to be the case with new market entrants such as IPC and Sunwealth.

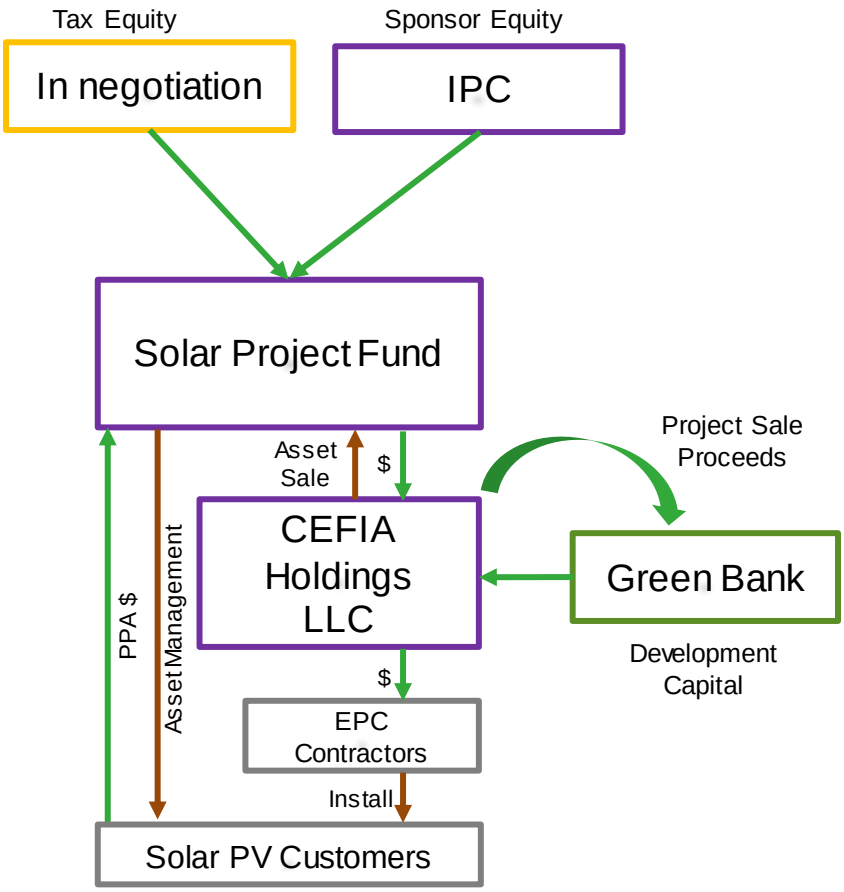
Capital deployed under this construct would be subject to the following terms:

- **Investment Type**: Debt (opportunistically) or Equity (likely);
- **Investment Return Profile**: Market returns based upon underlying project cash flows, with an expectation for a full, short-term return of capital plus either a reasonable developer markup or a sourcing fee / rights to residual cash flows depending on partnership structure;
- **Investment Risk Profile:** Standard development risk (principally, for projects of this size / credit quality, a lack of potential term financing) to be mitigated either through an internal Green Bank solution for unconventional credits, or via a predetermined credit box with one or more long-term 3rd-party owners;
- **Investment Amount:** Anticipated to constitute approximately $5 million in revolving funds, out of the total not-to-exceed amount of $15 million in new money authorized herein, subject to budget constraints.

Green Bank Participation and Financial Benefit

Structure Diagram

The diagram below, taken from the August 21, 2018 memo to the Board of Directors, represents the world in the instance where the Green Bank provides development financing and actively develops a project itself. To avoid confusion, rather than providing multiple diagrams, the authorizations requested in this memo would also allow the Green Bank to provide financing to a 3rd-party owner (in the case below, IPC) via, for example, debt directly to the solar project fund or back-leverage to the project sponsor.



Ratepayer Payback

How much clean energy is being produced (i.e. kWh over the projects lifetime) from the program versus the dollars of ratepayer funds at risk?

At a level of $10 million of term capital deployed, expected generation would be approximately 240 GWh over 25 years from an anticipated 8 MW of solar PV systems,[2] resulting in 240 kWh deployed per ratepayer dollar at risk.

Financial Statements

How is the program investment accounted for on the balance sheet and profit and loss statements?

The capital deployed by the Green Bank as authorized herein will result in a decrease in Unrestricted Cash on the Green Bank's balance sheet and, depending on the use of funds, an equivalent increase in either a) short- or long-term promissory notes receivable (likely), b) the creation of a development asset at the level of CEFIA Holdings (likely), or c) the creation of a long-term asset through the Green Bank's ownership interest (sponsor equity) in a solar project holding company (only if determined to be needed due to unexpected market conditions).

Risk to Ratepayer Funds

What is the maximum risk exposure of ratepayer funds for the program?

[2] Assuming $10 million makes up 50% of a project's capital stack, with an FMV of $2.50/W and average project yields of 1,200 kWh / kW

The maximum risk exposure of ratepayer funds for the program is a not-to-exceed amount of $15 million (subject to budget constraints), which may be development capital, construction or term debt capital to a 3rd-party solar project owner, or sponsor equity for a retained project.

Target Market

Who are the end-users of the engagement?

Commercial, municipal, and institutional PPA off-takers within the state of Connecticut, particularly of benefit to nonprofits and unrated small and medium-sized businesses and corporates that might otherwise struggle to access solar PV in the current market environment.

Program Partners

Key external players in the Green Bank's ongoing commercial solar PPA program could include:

- IPC
- Other PPA Sponsors including Sunwealth
- Tax equity providers such as Enhanced Capital ("Enhanced")

High-level overviews of IPC and Sunwealth follow in Exhibit A to this memo, as does a representative term sheet for tax equity from Enhanced. As a reminder, staff is not suggesting to the Board that these are the only potential partners under this program as it evolves. Rather, these types of partners provide the capital, expertise, and flexibility that the Green Bank sees as necessary components to continue to accelerate the deployment of this evolving but still underserved sector of the market.

Program Risks and Mitigation Strategies

The risks of structuring a commercial solar PPA financing program are well understood by the Green Bank given our deep experience operating in the market.

Market and Origination Risk:

Risks:

- Commodity prices / utility rate changes making PPA rates charged a less viable option for repayment of capital providers
- Green Bank is unable to originate enough qualified projects to meet targets (either internal or under partnership agreements)
- If the pricing of future PPAs developed by the Green Bank is materially different from existing projects due to partner return requirements, the market may not be able to support pricing
- Public policy changes (e.g., from net metering to a tariff) that have an adverse impact on energy savings to end-use customers

Mitigation Strategy:

- Flexible approach to capitalizing these projects such that there are multiple potential partners available for term financing (including IPC), with the option for the Green Bank to place long-term debt (in addition to providing development capital) to ensure return hurdles are hit while retaining attractive pricing for customers

- Advocating appropriate tariff rates before PURA for behind the meter solar PV that balance ratepayer impact with end-use customer savings

Structural risk:

Risks:

- Principally, Green Bank debt that is placed into a comingled portfolio of solar PPA projects across a 3rd-party owner's portfolio faces repayment risk that is not mitigated by Green Bank underwriting criteria due to exposure to projects that are outside of Green Bank's control

Mitigation Strategy:

- Green Bank will have either (i) segregated Connecticut project cash flow waterfall or alternatively (ii) a distinct tracking of the revenues, expenses and cash flows of Connecticut projects under the program satisfactory to Green Bank
- Green Bank will require appropriate minimum debt service coverage ratios of base case projections to mitigate risk of over leveraging and ensuring debt service requirements can be met
- Green Bank will require appropriate sponsor guarantees and reserves as necessary and maintain appropriate rights with respect to the underlying project collateral and/or the sponsor's equity interests therein

Credit Risk:

Risk:

- Underlying off-takers fail to pay or default under the terms of the PPA

Mitigation Strategy:

- C-PACE as a security mechanism for unrated entities
- Well delineated credit requirements (for rated and unrated) requiring investor oversight
- Amongst other potential credit enhancements, requiring prepayments during tax credit recapture periods for weaker credits, as necessary

System Performance Risk:

Risk:

- Solar PV systems supporting the solar PPA do not meet production expectations, the value proposition to commercial entities will decline, reducing energy savings

Mitigation Strategy:

- Strict EPC approval requirements ensuring EPCs have adequate experience, insurance, and finances to undertake project in a safe and effective manner, as well as ongoing oversight
- Enhanced commissioning protocols

- List of approved technologies, actively maintained/updated ensuring that technologies used are the most efficient, cost effective, and that manufacturers with the highest likelihood of being able to stand by their warranties are used

Development Risk:

Risk:

- Projects developed via CEFIA Holdings fail to reach completion

Mitigation Strategy:

- Continuation of existing Green Bank best practices with respect to project pricing, early fatal flaw analysis, rigorous negotiation of documentation, and contractor oversight
- Expansion of potential term financing solutions, including both competitive and strategic selections as authorized herein, to ensure all projects developed by the Green Bank find a long-term home with reasonable economic return for the Green Bank's invested resources and risk taken

Resolutions

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

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

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

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

NOW, therefore be it:

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

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

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

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

Submitted by: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Laura Fidao, Senior Manager, Clean Energy Finance

Exhibit A
Potential Commercial Solar PPA Program Partners

IPC

INCLUSIVE
PROSPERITY CAPITAL

A CONNECTICUT GREEN BANK SPIN-OUT

SCALING COMMUNITY DEVELOPMENT IN UNDERSERVED MARKETS
THROUGH CLEAN ENERGY AND SOCIAL IMPACT INVESTMENTS

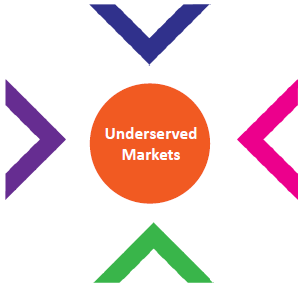
EXECUTIVE SUMMARY

INCLUSIVE PROSPERITY CAPITAL

Opportunity & Approach

Inclusive Prosperity Capital, Inc. is a not-for-profit specialty financing intermediary focused on aligning investment capital with organizations, projects, and community initiatives that successfully scale traditionally underserved markets:

- **Low-to-Moderate Income** Residential Solar
- **Multifamily Housing** Developments & Retrofits
- **Solar** for C&I, Community Assets, and Nonprofits
- **Hydro** (Small-scale)
- **Fuel Cells**
- **Anaerobic Digestion**



Capital + Products + Strategy honed by key members of the IPC leadership team at the Connecticut Green Bank

Fund Level Investment Options:

Instruments:
- Debt + "Equity Equivalent"

Collateral: Unsecured
Recourse: Full Recourse

Portfolio Investment Support:

- Warehouse Financing
- Tax Equity Placement
- Direct Investment

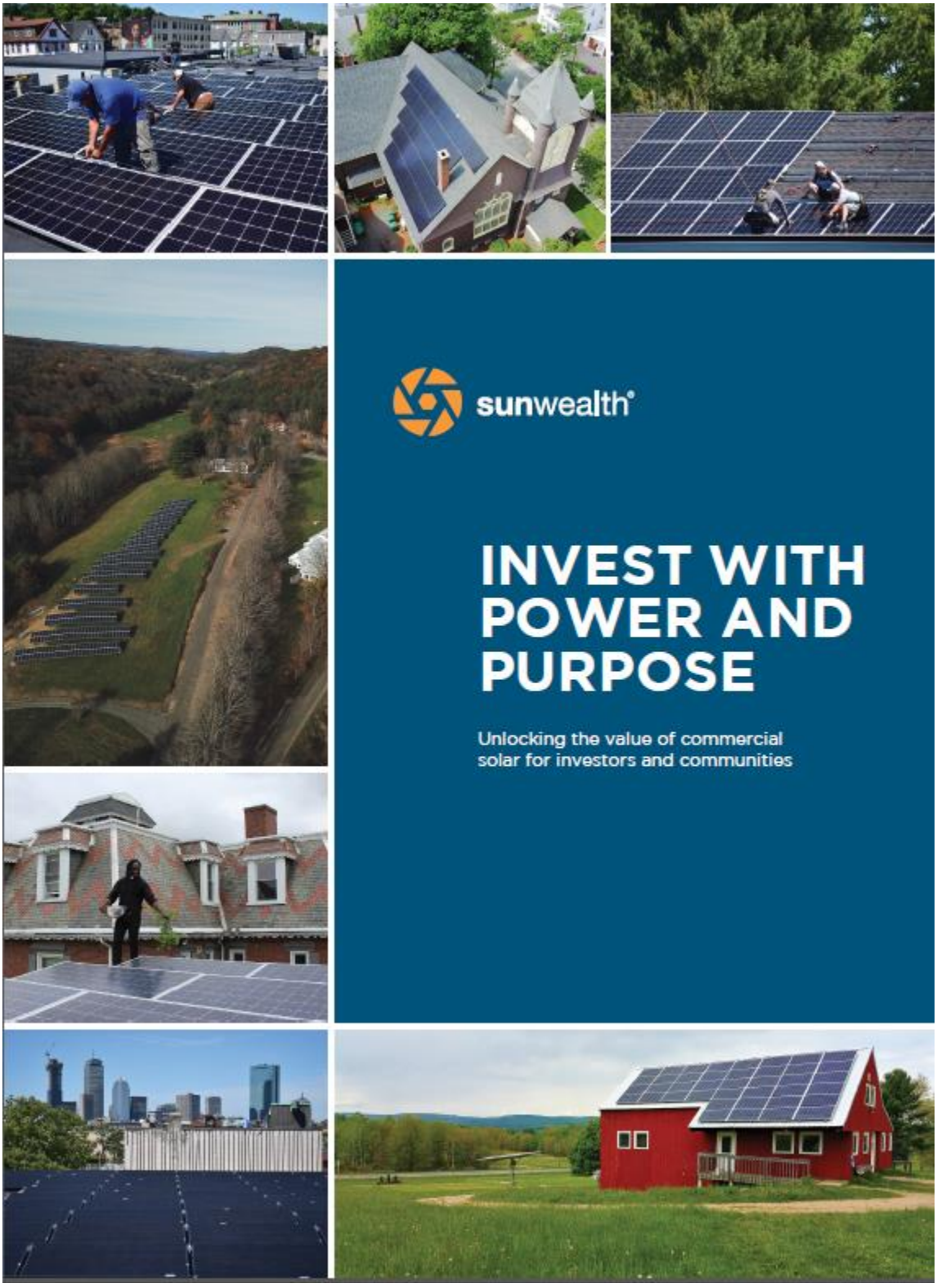
2

INCLUSIVE PROSPERITY CAPITAL

Distributed Solar PPAs

- **Target Market:** Municipalities, Non-Profits, Multifamily housing developments, Housing Authorities, Mid-Market Commercial
- **Credit Profile:** Investment Grade, Non-Investment Grade but credit-conforming or acceptable guarantor, or PACE-secured
- **Financing Structure:** Special Purpose Entity (SPE) with Sponsor Equity and Tax Equity participations, Levered as applicable (structured as either a partnership flip or inverted lease); IPC to serve as Sponsor based on experience deploying 35 MW+ to date
- **Repayment & Security Mechanisms:** PPA cash flows, REC cash flows, Tax benefits, asset liens, PACE liens (as applicable)
- **Investment/Return Profile:** 8%+ Sponsor Equity, 5-6% Term Debt (back-levered), market returns for Tax Equity across 20-Year PPA Terms
- **Facility Size:** 20 MW over 2-yr origination period (~$40 million total FMV, $15 million Tax Equity, $25 million Sponsor Equity / Term Debt)
- **CRA Eligibility:** Likely partially qualifying

Sunwealth


sunwealth®
INVEST WITH POWER AND PURPOSE
Unlocking the value of commercial solar for investors and communities

PURPOSEFUL INVESTMENT

Sunwealth's Solar Impact Fund brings together a diverse community of partners – including local solar developers, community groups, local businesses, and impact investors – committed to investing in a renewable energy future that benefits all of us.

DIVERSE PROJECTS

We work with strong, local developers to pinpoint projects across our communities and design solar systems that deliver significant energy savings to power purchasers.

STRONG UNDERWRITING

Proprietary review process ensures each project meets the highest quality standards. We are investing for the long haul in projects and partners that will be here for decades to come.

SOLAR IMPACT FUND

A robust, diverse and transparent pool of high-performing commercial solar projects designed to deliver social, environmental and financial returns to investors and communities.

POWERFUL RETURNS

Sunwealth generates powerful returns – for our communities, our local economy, our environment and our investors. We are reimagining the bottom line, building a portfolio that is diverse, transparent, inclusive and resilient.

COMMUNITIES
Solar access and energy savings

LOCAL ECONOMY
Jobs and income for local solar developers and installers

ENVIRONMENT
Carbon reduction

INVESTORS
Fixed income from an alternative asset

TWO WAYS TO INVEST

All Solar Impact Fund investors get the benefit of a simple, transparent investment in a diversified portfolio of solar projects owned and managed by Sunwealth. **Bond investors** receive fixed income returns over a 10-year term, with quarterly distributions of principal and interest. **Eligible tax equity investors** receive valuable tax benefits and preferred cash distributions over a 5-year term.

BOND FUND

Invest in a diverse portfolio of solar projects and receive predictable returns over a 10-year term through quarterly distributions of principal and interest.

TAX EQUITY

Turn a tax liability into an investment opportunity – invest in solar and receive tax credits, deductions and preferred cash return.

[redacted]

[redacted]

[redacted]

[redacted]

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[redacted]

[redacted]

845 Brook Street
Rocky Hill, Connecticut 06067

300 Main Street, 4th Floor
Stamford, Connecticut 06901

T: 860.563.0015
F: 860.563.4877
www.ctcleanenergy.com

CONNECTICUT GREEN BANK

Connecticut Municipal Electric Energy Cooperative

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

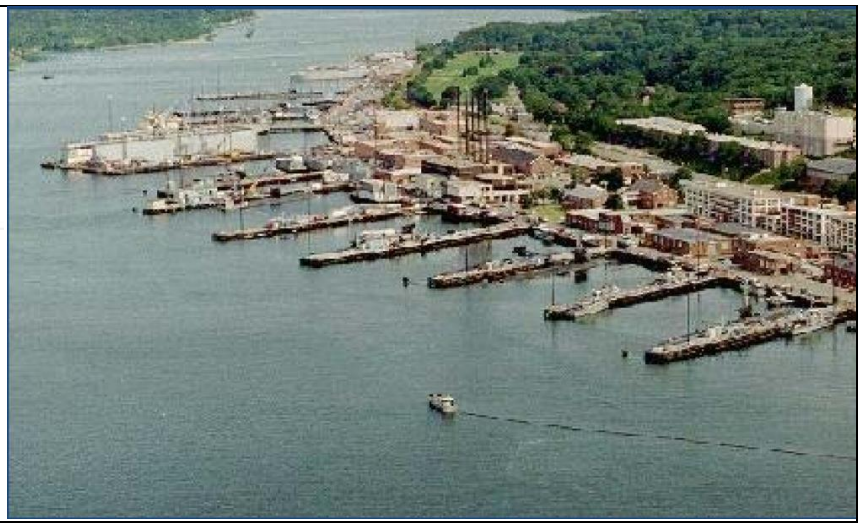
A Fuel Cell Debt Financing Program

Due Diligence Package

October 26, 2018

Connecticut Municipal cmeec Electric Energy Cooperative

GROTON UTILITIES



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

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

Program Qualification Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP & CIO

Cc: Bryan Garcia, President & CEO; Brian Farnen, General Counsel & CLO; Dale Hedman, Managing Director, Statutory & Infrastructure Programs

Date: October 26, 2018

Re: FuelCell Energy Credit Facility – CMEEC / Groton Fuel Cell Project – Subordinated Debt Financing

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Purpose

The purpose of this memo is to request approval from the Connecticut Green Bank ("Green Bank") Board of Directors (the "Board") for a $5,000,000 Subordinated Secured Credit Facility (the "Credit Facility"), in the form of a subordinated term loan to a to-be formed special purpose entity ("SPE"), as part of an overall senior-subordinated $23,000,000 term loan package (the "Term Facility") for the proposed 7.4 megawatt FuelCell Energy, Inc. ("FCE") fuel cell project located at the US Naval Submarine Base, Groton, CT (the "Project"). The SPE will be set up by FCE to own the Project, for the benefit of lenders and investors, and the $23,000,000 senior-subordinated term loan package will be collateralized by approximately $[redacted] in Project assets/cost and Project revenues.

Process Background – RFP Engagement

FCE engaged both the Green Bank and Inclusive Prosperity Capital, Inc. ("IPC", and together with Green Bank, the "Advisors") to advise FCE on a capital raise for construction debt for the Project because of the Advisors' (i.) relationships with local and regional lenders, (ii.) experience with financing for fuel cell projects generally and specifically capital raises for FCE and (iii.) knowledge of project and structured finance. As a result, the Advisors contracted with FCE to raise construction and (if offered by the respondents) term debt for the Project for a fee. The Advisors ran a competitive bid process (similar to an RFP, but for the benefit of FCE) with a select group of Connecticut banking institutions in order to finance a portion of the construction costs for the Project with a construction financing facility (the "Construction Facility"). The Construction Facility ties in with this approval request because (ii.) it was through this advisory process that Green Bank staff was able to assess the merits of the project and determine an interest in a term financing positions, and (ii.) the Construction Facility will be repaid in full with capital from a term financing facility upon the commercial operations date ("COD") in July 2019 (as scheduled).

The competitive bid was released in late August to approximately 14 lenders, and from those lenders the Advisors received interest from several banks through the end of September / early October; 2 indicative proposals for construction-only facilities, and 4 additional lenders interested in some form of Project/term participation. Through that interest and subsequent analysis about how various players could piece together a complete financing solution, recommendations from the Advisors resulted in FCE receiving an indicative term sheet for a $22.4 million construction financing facility from [redacted] (see Exhibit A), an approximately

[redacted] super-regional depository financial institution which is active in the retail banking market in 10 states as well as national presence for commercial loans, and a proposal for a senior term loan facility shared jointly between [redacted] and [redacted] (both facilities to be described in more detail later in this memo).

Project Background – Highlights

Project and PPA Summary

On October 19, 2017, FCE announced the execution of a power purchase agreement ("PPA") with the Connecticut Municipal Electric Energy Cooperative ("CMEEC") for the supply of power to the U.S. Navy Submarine Base in Groton, Connecticut in order provide the U.S. Navy with energy that is (1.) clean, (2.) resilient (i.e. can operate independent of the grid), and (3.) cost-effective (i.e. reducing energy expenses, which compose approximately 28% of this U.S. Navy sub base's "shore budget")[1]. The Project will be sited on the actual U.S. Navy Submarine Base, on land that CMEEC has leased from the U.S. Navy for this purpose and which CMEEC will in turn sub-lease to FCE for the duration of the Project's operations. Under the terms of the PPA, CMEEC will purchase all of the energy produced by the Project and will in turn utilize that energy for the benefit of the base.

The PPA will be underpinned by the production from two FCE SureSource4000™ power plants which combine for 7.4 MW of total electrical output and an expected annual production in the first full year of operation of over [redacted] kWh (the "Project"). The Project will be constructed, owned, operated, and maintained by FCE – a process which aligns with FCE's vertically integrated business strategy and also makes the liquidity provided by both the Construction Facility and Term Facility important for FCE's continued growth and ability to execute on its project development pipeline.

The Project has already broken ground and is under construction. It is financed currently purely by cash from FCE's own balance sheet, and it is envisioned that the Construction Facility will become available during the remainder of the construction period – with a target closing and funding date of early November – to offset part of that FCE cash equity outlay, followed by placement of the Term Facility which will "take out"/repay the Construction Facility and be repaid via (i.) PPA cashflows, and (ii.) Class I REC cashflows.

Both the Green Bank and IPC view this Project, and the goals of providing clean, resilient, and cost-effective energy to the US Navy Submarine Base, as collectively of strategic national importance, local economic/development significance and significant environmental benefits:

> "The submarine base in Groton is home to 15 nuclear submarines and generates about $4.5 billion a year for Connecticut's economy when employment, sale of

[1] "FuelCell Energy Finalizes 7.4 Megawatt Utility Project to Power a Strategic Military Installation", https://investor.fce.com/press-releases/press-release-details/2017/FuelCell-Energy-Finalizes-74-Megawatt-Utility-Project-to-Power-a-Strategic-Military-Installation/default.aspx, Accessed August 21, 2018.

goods and services and other factors, including housing, are considered" – The CT Mirror, September 13, 2017[2]

In addition to direct benefits from the base, FCE is a Connecticut-domiciled company and the inclusion of (i.) [redacted] and [redacted], both of which are [redacted], and (ii.) [redacted], an out-of-state bank injecting capital into Connecticut helps promote further economic development and local direct investment.

Project Investment/Risk Profile

From the investor perspective, the Project carries key attributes that make it an attractive asset (as demonstrated by the success to-date of the Advisors' competitive bid process). As part of FCE's strategic goals to own as many of these projects on balance sheet in order to build a stable and significant cash flow for FCE and build enterprise value, FCE seeks to be the ultimate owner of the Project. Current plans are for a tax equity investor to join the Project's capitalization. Alternatively, the project might be the subject of a "sale and leaseback" arrangement or it could be sold outright to a third party investor. Below is a sample of key investment attributes, though an extensive list of Project risks and mitigants to the Green Bank's position are discussed further in the sections below:

- Construction & Technology Risk: Full engineering, procurement, and construction ("EPC") wrap provided by FCE (together with customary construction bonding for the EPC contractor), coupled with a 20-year service contract (also provided by FCE) covering full maintenance and production requirements, include stack replacements;

- Development & Siting Risk: Project sited on the U.S. Naval Submarine Base, Groton CT, and construction and expenditures already commenced: [redacted] expended from May 2018 – July 2018, with an additional expenditure of approximately [redacted] expected between August 2018 – June 2019;

- Counterparty Risk: Experienced fuel cell manufacturer and operator (over 200 MW of clean power generating plants in operation, with another 85 MW of new projects awarded and commencing construction over the next 18 months – including projects awarded to FCE under the CT-DEEP RFP and Long Island Power Authority RFP);

- Credit/Repayment Risk: Approximately [redacted] – [redacted] kWh of annual electricity production, monetized by both PPA cashflows and Class I Renewable Energy Credits ("RECs")[3], with an Investment Grade offtaker (rated Aa3 and A+ by Moody's and Fitch, respectively).

Use of Proceeds – High Efficiency Fuel Cell Project

The Credit Facility, as part of the Term Facility, will help finance the largest configuration to date of FCE's Direct

[2] "Senate heads toward political fight over new base closing round", https://ctmirror.org/2017/09/13/senate-heads-toward-political-fight-over-new-base-closing-round/, Accessed October 18, 2018.

[3] Contracted RECs ("LRECs") are not available for this project due to its size and location in CMEEC service territory.

FuelCell ("DFC") fuel cell technology, which is the most efficient fuel cell installed by FCE. The Advisors have the benefit of having reviewed this technology during underwriting for the FCE Triangle project in Danbury, CT, which was approved for a credit facility by the Board in 2017.

The Project will similarly utilize in-state developed, designed, and manufactured technology to create a new benchmark of product efficiency across the fuel cell industry, converting natural gas into electricity at a high fuel-to-electricity ratio while also reducing pollution by up to 99.99% in comparison to conventional power generating plants. The innovative technology achieves additional electrical output through a proprietary design developed by FCE, which has extensive experience deploying innovative fuel cell projects (as discussed in the section above).

Construction Facility – [REDACTED]

Summary Terms and Conditions

The proposed Construction Facility by [redacted] constitutes a $22.4 million construction note with an interest rate of [redacted] (approximately [redacted] in the current interest rate environment). The construction note accrues and capitalizes interest and is repaid in full upon the Project's COD. The Construction Facility will be secured by a 1st priority lien on Project assets during construction and will benefit from a full EPC wrap provided by FCE. A primary condition of the construction note is committed term financing for the Project in an amount not less than the balance of the construction note. The [redacted] term sheet for the Construction Facility can be found in Exhibit A.

Term Facility – [REDACTED]

Summary Terms and Conditions

The Term Facility is comprised of a $23,000,000 senior-subordinated term loan package whereby $18 million composes a jointly-proposed senior secured debt position (the "Senior Credit Facility") held by [redacted] and [redacted] (collectively, the "Senior Lenders"), and $5 million represents the Green Bank Credit Facility, which is subordinated to the Senior Credit Facility.

The $18 million Senior Credit Facility also carries an interest rate of [redacted] (approximately [redacted] in the current interest rate environment), and is fully amortizing over a 15-year term. It will be advanced upon the Project's COD, and will be supported by a 1.20x Debt Service Coverage Ratio (DSCR) sized against PPA cashflows relative an O&M fee structure that is sculpted (by FCE, who is the O&M provider) in order to maintain the 1.20x DSCR across the financing term. This structure ensures that the Senior Lenders only face production and CMEEC credit risk (and not Class I REC risk, as discussed further below), which has the effect of optimizing for both (i.) the Senior Credit Facility interest rate, and (ii.) the amount of debt that can be sized under that facility. As the Green Bank, IPC, and FCE are currently in the process of finalizing the terms and conditions associated with the Senior Credit Facility, variations to the structure may arise that, while they represent value to the Senior Lenders, would not put any additional risks onto the Green Bank's position (e.g. the implementation of a reserve fund).

The Green Bank's position vis-à-vis the Credit Facility is a subordinate, secured interest in the Project, relative to the Senior Credit Facility, that is repaid via a combination of (i.) PPA cashflows, and (ii.) REC cashflows. The Green

Bank note is also fully amortizing over a 15-year term, but carries an interest rate of [redacted] to account for its subordinated position in the structure.

Because the Senior Credit Facility is sized against purely PPA cashflows, the Green Bank's repayment profile necessarily includes REC cashflows, and because the Project does not qualify for contracted LRECs (the Project is located in CMEEC service territory and is thus ineligible for the LREC program), those REC cashflows take the form of Class I RECs that are not contracted beyond a short term (up to 5 years maximum) period and are priced by supply and demand dynamics in the Connecticut Class I REC market. In order to compensate for that additional risk, the Green Bank is requiring, in addition to Project cashflows, a payment guaranty from FCE at the corporate/parent level to support a minimum [redacted] price per REC on a cumulative basis to the extent REC revenue directly reduces Green Bank's subordinated loan. The economic benefits of (i.) Project cashflows, (ii.) a corporate guaranty, and (iii.) a 15-year financing term (relative to a 20 year initial PPA term and Project useful life) combine with the qualitative benefits of Project being of strategic national and local importance to create a risk profile that Green Bank staff believes is in line with the purpose, goals, and benefits of the Credit Facility. In the end, if necessary, Green Bank (and the senior lenders) would have the benefit of an additional 5 years of PPA revenues from the project to repay the Term Facility.

Strategic Selection and Importance

Connecticut Impact

Support for the Connecticut CES

Fuel cells, as an electrical power generating technology, convert hydrogen fuel sources (e.g. natural gas) into electricity via a chemical process without the combustion cycle typically found in traditional generation technologies, and thus without the associated pollution[4]. Fuel cells are defined as a Class I renewable energy source as per CGS §16-1(a)(20), and operate at an effective annual capacity factor of 80-90%[5], providing clean, consistent, and reliable power to associated off-takers, whether grid-tied or behind-the-meter. In aggregate, the fuel cell industry is of strategic importance to Connecticut as it relates to economic development, job creation and retention, and clean energy deployment

Green Bank staff believes that by providing key pieces of the capital stack and financing structures for strategic fuel cell assets in Connecticut, such as the Credit Facility, Green Bank can help promote the foundation for a viable transition from subsidizing to financing models for a key clean energy technology that promotes environmental, energy, and economic benefits for the state. This approach and its progress towards the intended goal of leveraging private capital towards financing models continues to show promise, as evidenced the results of the $5 million Credit Facility leveraging a $22.4 million Construction Facility and $18 million Senior Credit Facility for the Project, an overall leverage ratio of $8 private capital to $1 of Green Bank investment.

Grid Stability & Support

[4] FuelCell Energy, "How a Fuel Cell Works," http://www.fuelcellenergy.com/?page_id=15806, (February 26, 2017).
[5]Connecticut Green Bank, *Pro Forma Model Projections (as supplied by FuelCell Energy)*, (February 1, 2017).

From a power generation perspective, fuel cells benefit the existing electric distribution system as distributed baseload plants that stabilize loads (versus intermittent renewable energy technologies such as solar and wind), provide voltage support, and mitigate system upgrade requirements[6], resulting in enhanced system stability and cost-savings.

Benefits to the RPS and Environmental Benefits

From a clean energy power generation perspective, fuel cells provide Connecticut with a viable means of achieving its current Renewable Portfolio Standard ("RPS") policy of 20% of energy generation from Class I renewable energy sources by 2020[7], and provide potential off-takers with clean and reliable power that can be used in standalone and aggregated (e.g. microgrid) applications. This is especially true for the Groton submarine base. In fact, fuel cells have enabled Connecticut to meet its Class I RPS with more in-state deployment of clean renewable energy as opposed to out-of-state generation.

Looking at the Project from its pollution reduction potential, accordingly to an EPA report published on February 27, 2017, the average non-baseload output emissions rate across the New England eGRID subregion is 1,066 lbs of CO_2 per MWh of power produced[8]. In contrast, the technology underpinning the Project has a CO_2 emissions rate ranging between 520 – 680 lbs per MWh. Comparing the midpoint of the Project's emissions rate with the average regional non-baseload production rate, the Project saves, on average, 466 lbs of CO_2 per MWh of power produced. The Project is expected to produce [redacted] MWh of electricity during its first year of operation, offsetting [redacted] lbs of CO_2, or the equivalent of [redacted] tons of CO_2 in that first year of operation. Across the 20-year financing term, the Project is expected to produce up to [redacted] MWh of electricity, offsetting approximately [redacted] tons of CO_2. Comparing the project's CO_2 reduction capacity with the performance of other Green Bank projects in meeting pollution reduction goals, during its 2016 Fiscal Year Green Bank approved, closed, or completed a total of 8,271 clean energy projects which, in aggregate, will offset 885,103 tons of lifetime CO_2 emissions. The proposed Project, by offsetting [redacted] tons of CO_2, would by itself account for approximately [redacted]% of expected CO_2 emissions reductions from all Green Bank financing and development activities in its 2016 Fiscal Year.

Economic Impact

From an economic perspective, Connecticut is home to over 600 companies that take part in the fuel cell industry supply chain, which account for over 2,600 direct and indirect jobs[9], and which in 2015 contributed $726 million in

[6]Connecticut Department of Energy & Environmental Protection, "Testimony Submitted by DEEP Commissioner Robert J. Klee, and Katie Dykes, Chair, Public Utility Regulatory Authority," *Public Hearing – February 21, 2017 – Energy and Technology Committee*, https://www.cga.ct.gov/2017/ETdata/Tmy/2017HB-07036-R000221-Klee,%20Robert,%20Commissioner-DEEP-TMY.PDF, (February 26, 2017).

[7]Connecticut Department of Energy & Environmental Protection – Public Utilities Regulatory Authority, "Connecticut Renewable Portfolio Standard," http://www.ct.gov/pura/cwp/view.asp?a=3354&q=415186, (February 26, 2017).

[8]United States Environmental Protection Agency, "eGRID2014v2 Summary Tables," https://www.epa.gov/sites/production/files/2017-02/documents/egrid2014_summarytables_v2.pdf, (March 4, 2017).

[9]Department of Economic and Community Development, "Testimony Before the Energy and Technology Committee 2/21/17 – RE: HB7036: An Act of Promoting the Use of Fuel Cells for Electric Distribution System Benefits and Reliability," *Public Hearing – February 21, 2017 – Energy and Technology Committee*, https://www.cga.ct.gov/2017/ETdata/Tmy/2017HB-07036-R000221-Smith,%20Catherine,%20Commissioner-Department%20of%20Economic%20and%20Community%20Development-TMY.PDF, (February 26, 2017).

total revenue and investment and roughly $40 million in state and local tax revenue[10], which is a material portion of commercial tax revenues for the state. In December 2016, FCE was forced to cut 96 jobs, approximately 17% of its workforce, to reduce costs and support operating performance in the wake of adverse industry shocks. Support of the Project will directly lead to not only the creation and retention of jobs associated with the Project, but also to FCE's ability to ultimately bring back this workforce as other projects come on line and as it implements its long-term growth strategy.

Green Bank Strategic Alignment

With the goal of creating a viable market for the transition from subsidy-based to financing-based models of development for fuel cells in Connecticut, financing the Project is also of strategic importance to Green Bank, as the Project exhibits the following criteria, which are required of all Green Bank strategic selection and award investments:

- **Special Capabilities –** FCE has significant experience in manufacturing and developing fuel cells (as discussed in the "Project Background – Highlights" section above), and is a locally-domiciled market leader in the industry. FCE can spearhead the pivot away from tax incentives and state procurement subsidies via cost reductions derived from technological innovation and market penetration.

- **Uniqueness –** The Project is of strategic national importance, supporting the U.S. Navy submarine base in Groton, CT, and it has already been sited and is under construction, backed by approximately [redacted] of developmental and construction capital by FCE to date.

- **Strategic Importance –** The Project is aligned with Green Bank goals, including the creation and retention of local jobs associated with FCE, the deployment of an innovative technology that will play an integral role in the economic transformation of the fuel cell industry, and the development of a clean energy generating asset that, both on an individual basis and as similar projects are deployed at scale, will continue to provide a combination of cleaner, cheaper, and more reliable energy, while creating jobs and supporting local economic development.

- **Urgency and Timeliness –** There is an urgent need to act on the opportunity as the Project is already under construction and is currently being financed in full by cash from FCE's balance sheet. This approach is inefficient, as it soaks up development capital that could be used for other projects in FCE's development pipeline, and it necessarily means that every month and construction milestone that passes foregoes an opportunity to match FCE's capitalization/liquidity needs with interested lending parties.

[10]Connecticut Center for Advanced Technology, Inc., "Testimony of Joel M. Rinebold, Director of Energy Initiatives, Connecticut Center for Advanced Technology, Inc., Before the Energy and Technology Committee February 21, 2017, Regarding Governor's Bill No. 7036 – An Act Promoting the Use of Fuel Cells for Electric Distribution System Benefits and Reliability," *Public Hearing – February 21, 2017 – Energy and Technology Committee*, https://www.cga.ct.gov/2017/ETdata/Tmy/2017HB-07036-R000221-Rinebold,%20Joel,%20Director%20of%20Energy%20Initiatives-CT%20Center%20for%20Advanced%20Technology-TMY.PDF, (February 26, 2017).

- **Multiphase Project –** Successful execution of the Credit Facility will set the stage for the Green Bank to support the development of similarly strategic projects both for FCE (e.g., the CT DEEP RFP projects) and for the greater fuel cell industry within Connecticut.

Green Bank Project Risk and Mitigants

The Green Bank faces risks by means of the Project itself and the Green Bank's subordinated position in the term financing structure of the Project. Green Bank staff believes it has identified and mitigated those risks.

Staff recommends the authorization of the Credit Facility on the basis that Project risks have been reasonably mitigated, and that the strategic importance of the Project, to both the state and Green Bank, warrant the investment:

Manufacturer Risk

A. Overview

The Green Bank loan to the Project will benefit from a limited payment guaranty from FCE (i.e., minimum cumulative [ ] REC value). As such, the Green Bank needs to be comfortable with FCE's financial condition and prospects for continuing as a going concern. After extensive review of FCE's financial condition and interviews with its management, including its CFO, staff is comfortable that FCE has both a credible and reasonable path to sustainable operations, which suggest that the Green Bank can have reasonable assurance that FCE can stand behind its obligations under both the outstanding Bridgeport loan and the proposed Credit Facility. At the same time, staff takes comfort in the fact that, if necessary, there is a 20-year PPA cash flow stream against Green Bank's 15-year term facility.

B. Business Summary

FCE is engaged in designing, manufacturing, installing, operating and maintaining fuel cell power solutions. FCE also provides turnkey power generation solutions to the customers, including power plant installation, operations and maintenance. FCE offers its services to various sectors, including utility companies, municipalities, universities, government entities and a range of industrial and commercial enterprises. FCE, by utilizing its DFC plants, is commercializing a tri-generation distributed hydrogen configuration that generates electricity, heat and hydrogen for industrial and/or transportation uses, as well as a fuel cell carbon capture solution for coal or gas-fired power plants.

C. Financial Condition

FCE has successfully competed in several RFPs (CT-DEEP and Long Island (NY) Power Authority) and is currently sitting on its largest backlog of projects in company history. FCE's continued success will depend on its ability to align adequate financing structures (such as those contemplated herein) with those projects for development, construction, and term facilities. The backlog takes the form of long-term cashflows, underpinned by project-related PPAs and service contracts, which reflects FCE's strategic transition to generate stable, recurring cash flows that will help support the company's long-term growth and cost reduction strategies. As per the diagram

below (and as further reflected in financial statements in Exhibit B), this strategic focus on long-term cashflow generation is expected to result in FCE becoming EBITDA positive in [REDACTED]:

[REDACTED]

As of July 31, 2018, FCE has total current assets of approximately [REDACTED], and total assets of approximately [REDACTED] relative to total liabilities and preferred equity of approximately [REDACTED].

By expanding its retained project portfolio, FCE benefits from adding predictable and recurring revenue. Through the first 3 quarters of its current Fiscal Year period FCE generated [REDACTED] in Revenue, it is expected to close out the Fiscal Year with [REDACTED] in Revenue, and by continuing to generate recurrent revenue from current projects as well as capitalize on its backlog FCE expects Revenue to jump to [REDACTED] in its 2019 Fiscal Year period.

[REDACTED]

D. Diversified Business Mix

In addition to FCE's Energy Supply Business, FCE is taking advantage of the ability of its technology to meet applications for various energy and storage-related purposes, including carbon capture, hydrogen for transportation, and energy storage:

[REDACTED]

E. Liquidity & Capital Resources

According to FCE's latest financials FCE has sufficient liquidity to meet working capital and capital expenditure needs on the horizon, though FCE's ability to execute on the full potential of its backlog is greatly increased by the availability of financing facilities such as those contemplated herein. Given that several of the projects that comprise this backlog consist of PPA-backed arrangements with investment grade utility offtakers, such as with the Project, Green Bank considers these projects as highly "bankable". See the financial statements is Exhibit B for a more complete picture of FCE's financial position and projections.

F. Conclusion

While FCE is not without operating and business challenges, staff has gained sufficient confidence, through underwriting both this Project and the Triangle project in Danbury which received Board approval in 2017 as well as FCE's success in securing projects under the CT-DEEP and Long Island (NY) Power Authority RFPs, in FCE's ability to execute on its strategy with respect to win new business and retaining projects on balance sheet to generate recurrent cash and revenue streams for the company. Continuing successful implementation of this strategy will allow FCE to better align its operations with current reality, and to diversify revenues so as to provide a credible path to financial stability and sustained growth. FCE also raised approximately $30 million of capital in August 20108, further evidence of investor/market confidence in FCE prospects for the future. That said, FCE also needs to remain successful in continuing to develop its core business – and the existing fuel cells and its next generation high efficiency modules should position the company well to succeed competitively as the power generation marketplace progressively moves to cleaner, sustainable and higher availability sources.

Class I REC Risk

The Project will operate, at least initially, without a long-term REC pricing contract (i.e., >5 years) in place. This means that REC cash flows can vary due not only to variations in production but also to variations in the supply and demand dynamics of the Class I REC market in Connecticut.

While the overall risk profile of the Project is composed of different types of risk, including those that directly and indirectly impact production and REC market pricing, the Green Bank is exposed to REC pricing risk due to its position in the term financing capital stack and therefore requires its own consideration.

For each specific type of risk outlined below in subsequent sections, there are specific structures, concepts, and mitigants that staff has designed to minimize Green Bank exposure to certain downside scenarios. There are, however, several overarching mitigants that will be put in place due to the overall concept of risk, and in effect, can be applied to almost all of the defined Project risks. Those overarching mitigants are identified below:

General Risk Mitigants:

A.) The Credit Facility will benefit from a limited payment guaranty from FCE (the "Guaranty"). As stated above, the latest FCE balance sheet reports Net Assets (Total Assets minus Total Liabilities minus Preferred Equity) of approximately [ ].

B.) The Credit Facility will be secured by a subordinated lien on, and security interest in, all Project assets, and collateral assignment of all Project cash flows (the "Project Collateral").

C.) The Credit Facility will benefit from a 5-year cushion between the end of the PPA contract (20 years) and the financing term (15 years).

D.)

E.) Green Bank staff has conducted extensive cash flow modeling and stress tests, under various "downside" scenarios, specifically with regards to the price of Class I RECS, to better understand and assess Green Bank's risk exposure and repayment prospects. Such modeling has helped (i.) in determining appropriate

levels of risk mitigation, and (ii.) in giving staff confidence in the undertaking of financing the project, given the implemented structural and conditional mitigants. Such stress testing indicates that even if Class I RECs are priced at [ ] per REC across the 15-year financing term, the Green Bank would still receive its principal and interest in full.

Technology Risk

The Project represents the largest commercial implementation to date of the latest configuration of FCE's DFC fuel cell technology, which is capable of achieving up to [ ] electric power generation system compared with up to [ ] in previous configurations. As such, there is a lack of performance history in the field, although there has been significant in-house testing of the technology, as explained below. Should the Project underperform – because the main revenue drivers of the Project are monetized on a per kilowatt hour ("kWh") basis – the Project's ability to adequately cover debt service payments to Green Bank will be impaired.

Technology Risk Mitigants:

1.) Green Bank funds will not be advanced until COD, at which point the Project will be fully operational and will have undergone systematic testing to ensure operating performance aligns with expectations.

2.) FCE has developed and operated a small-scale version of the technology on its corporate location over a 6-month period, providing valuable operating data and experience with the high-efficiency unit.

3.) FCE has significant experience and expertise in developing and operating innovative fuel cells, such as the Bridgeport Project, which remains the largest standalone fuel cell in the United States.

4.) At the portfolio level, FCE's long-term average historical fleet performance is at an availability factor of [ ] and a capacity factor of [ ], and with technology improvements FCE expects that capacity factor to increase to [ ].

Production Risk

Aside from performance risk associated with any relatively new technology (which, as explained above, staff believes are reasonable under the circumstances as the technology is derivative of existing successful technology), Project cash flows available for debt service can fluctuate due to a range of unexpected operational issues, ranging from unexpected outages from fuel line disruptions to disturbance from the surrounding urban environment.

Production Risk Mitigants:

1.) Green Bank pro forma modeling scenarios account for annual allocations of cash to support O&M and planned restacking.

2.) FCE will operate and maintain the Project, into which it will have sourced approximately [ ] of developmental capital by the time the Project reaches COD.

3.) The PPA agreement between FCE and CMEEC requires a minimum production guarantee from FCE for the benefit of CMEEC, creating an incentive for FCE to maintain production beyond solely debt service requirements.

Credit Risk

As the off-taker in the PPA, purchasing energy from FCE and reselling it to the U.S. Navy as part of its purpose as an electric energy cooperative utility servicing the submarine base, Project cashflows are dependent on CMEEC's ability to pay for electric energy produced from the Project. Furthermore, CMEEC is leasing the land on which the Project is sited from the U.S. Navy and subleasing that land to FCE in order to operate and maintain the Project. Should either CMEEC become financially impaired or the U.S. Navy terminate its land lease with CMEEC, the ability of the Project to repay the Green Bank with Project cashflows is at risk.

Credit risk mitigants:

1.) CMEEC is an investment-grade rated entity (Aa3 and A+ by Moody's and Fitch, respectively) that has approximately $193 million in total assets on its balance sheet as of June 30, 2018[11].

2.) CMEEC has been operating for 40 years, and its member utilities provide electricity to 70,000 customers within Connecticut[12].

3.) CMEEC has a executed lease with the U.S. Navy, for the purpose of the Project, the terms of which are aligned with the terms of CMEEC's sublease and PPA agreements with FCE for the Project.

Commodity Risk – Natural Gas

Because the terms of FCE's PPA with CMEEC dictate that CMEEC is responsible for fuel (natural gas) and fuel costs for the Project, there is no natural gas/commodity risk to the Project and the lenders/Green Bank.

Portfolio/Exposure Risk

Green Bank currently has a $6.0 million loan outstanding to FCE for the Bridgeport Project, and has an approval to place up to $5 million on the Triangle project in Danbury, CT – though that debt placement is on hold as the project has since become eligible for a 30% Investment Tax Credit ("ITC") and FCE is currently reviewing alternative financing structures that monetize the ITC. The addition of the Credit Facility, if placed in full, would bring Green Bank's total exposure to FCE and FCE projects up to $11 million, which represents 6.2% of Green Bank's Total Assets as of December 31, 2016 ($177 million). Green Bank staff intends to limit its total exposure to FCE and FCE projects to a total of $16.0 million. FCE and the Green Bank are also considering a refinancing of the Green Bank loan associated with the Bridgeport project which could be balanced across multiple FCE projects by cross-collateralizing these projects under a single loan facility, and Green Bank could also syndicate a portion of its loan(s) to IPC.

Portfolio/Exposure Risk Mitigants:

[11] https://cmeec.com/download/cmeec-operations-and-financial-reports-for-period-ending-june-2018/?wpdmdl=10266
[12] https://cmeec.com/about/

1.) Mitigants such as the Project Collateral, the Guaranty, and the potential to either syndicate or cross-collateralize across projects all combine to limit the exposure to losses that Green Bank could experience on principal invested.

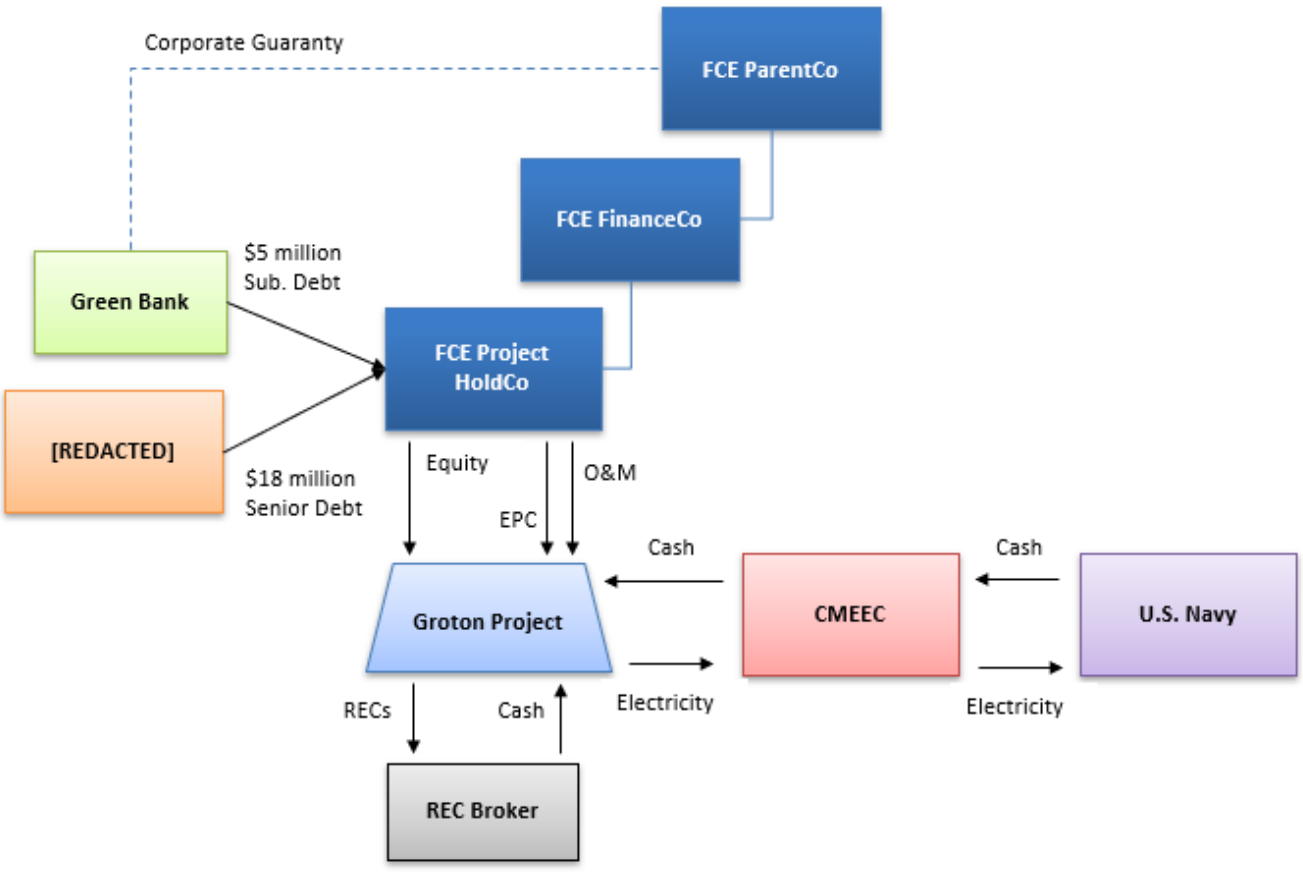
2.) Staff's stress-testing of financial models show that, even under duress, the project can reasonably be expected to perform in a manner sufficient to deliver a return of principal, plus interest, to Green Bank, over the course of the financing term.

Proforma Projection Model for Debt Service

Staff has worked with FCE to develop reasonable projection model estimates for the Project. Staff then took these estimates and developed a stress-case scenario (see Exhibit C). Based on these estimates, staff anticipates that over the 15-year term the Project will generate sufficient cash flow to service the Loan. As additional assurance, staff looks to the financial backing from FCE for repayment in case of REC revenue shortfalls.

Capital Flow Diagram and Tables

Capital Flow Diagram - Term Financing



The Corporate Guaranty is specifically for a minimum required REC price

Sources and Uses – Project Construction

[**REDACTED**]

Project Construction Schedule

[**REDACTED**]

Strategic Plan

Is the program proposed, consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?

As confirmed in the Bridgeport Fuel Cell Project Qualification Memo approved by the Board and Deployment Committee on November 30, 2012, pursuant to the Green Bank's mandate to foster the growth, development, and commercialization of renewable energy sources and related enterprises, and to stimulate demand for renewable energy and the deployment of renewable energy sources that serve end use customers in Connecticut, the Board has determined that is in keeping with Conn. Gen. Stat. Section 16-245n for Green Bank to fund certain commercial activities that support projects involving the use of fuel cell technology for distributed generation ("DG") power production.

Staff recommends that these same criteria be applied to fuel cell facilities, such as the Project, for the reasons included throughout this Memo, and in particular as laid out in the **Strategic Selection and Importance** section of this Memo.

Ratepayer Payback

How much clean energy is being produced (i.e. kWh over the projects lifetime) from the program versus the dollars of ratepayer funds at risk?

The Project is expected to produce [redacted] during the first year of operation, and up to [redacted] during its 20-year useful life. Compared with $5,000,000 of ratepayer funds at risk, the Project is expected to yield up to [redacted] per $1 of ratepayer funds over a 20-year term.

Terms and Conditions

What are the terms and conditions of ratepayer payback, if any?

The Credit Facility carries an interest rate of [redacted] over a 15-year, fully amortizing term. The Credit Facility will be advanced upon COD, expected in July 2019, and will be secured by a subordinated lien and position on Project assets and cashflows. In addition, the Credit Facility will benefit from a payment guaranty from FCE to backstop a minimum REC value.

Capital Expended

How much of the ratepayer and other capital that Green Bank manages is being expended on the project?

$5,000,000

Risk

What is the maximum risk exposure of ratepayer funds for the program?

$5,000,000

Financial Statements

How is the program investment accounted for on the balance sheet and profit and loss statements?

The loan would result in a $5,000,000 reduction of cash and a $5,000,000 increase in promissory notes (Statutory & Infrastructure program).

Target Market

Who are the end-users of the engagement?

The U.S. Navy submarine base located in Groton, CT.

Green Bank Role, Financial Assistance & Selection/Award Process

Lender via Strategic Selection process pursuant to the Green Bank Operating Procedures (see **Strategic Selection and Importance** section of this Memo).

Program Partners

FuelCell Energy, Inc., and Inclusive Prosperity Capital, Inc.

Risks and Mitigation Strategies

Lending risks and mitigation strategies have been addressed in the **Project Risks and Mitigants** section of this Memo.

Resolutions

WHEREAS, in accordance with (1) the statutory mandate of the Connecticut Green Bank ("Green Bank") to foster the growth, development, and deployment of clean energy sources that serve end-use customers in the State of Connecticut, (2) the State's Comprehensive Energy Strategy ("CES") and Integrated Resources Plan ("IRP"), and (3) Green Bank's Comprehensive Plan for Fiscal Years 2018 and 2019 (the "Comprehensive Plan") in reference to the CES and IRP, Green Bank continuously aims to develop financing tools to further drive private capital investment into clean energy projects;

WHEREAS, FuelCell Energy, Inc., of Danbury, Connecticut ("FCE") has used previously committed funding (the "Bridgeport Loan") from Green Bank to successfully develop a 15 megawatt fuel cell facility in Bridgeport, Connecticut (the "Bridgeport Project"), and FCE has operated and maintained the Bridgeport Project without material incident, is current on payments under the Bridgeport Loan, and has received approval from the Green Bank for funding from the Green Bank (the "Triangle Loan") to develop a 3.7 megawatt high efficiency fuel cell project in Danbury, Connecticut (the "Triangle Project");

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

WHEREAS, staff has considered the merits of the Project and the ability of FCE to construct, operate and maintain the facility, support the obligations under the Loan throughout its 15-year term, and as set forth in the due diligence memorandum dated October 26, 2018, has recommended this support be in the form of a term loan not to exceed $5,000,000, secured by all project assets, contracts and revenues as well as a and limited payment guarantee of FCE (the "Credit Facility");

WHEREAS, Green Bank staff recommends that the Green Bank Board of Directors ("Board") approve of the Credit Facility, in an amount not to exceed $5,000,000.

NOW, therefore be it:

RESOLVED, that the Green Bank Board of Directors hereby approves the Credit Facility in an amount not to exceed $5,000,000 for the Project, as a *strategic selection and award* pursuant to Green Bank Operating Procedures Section XII; and

RESOLVED, that the President of the Green Bank and any other duly authorized officer is authorized to take appropriate actions to provide the Credit Facility to FCE (or a special purpose entity wholly-owned by FCE) in an amount not to exceed $5,000,000 with terms and conditions consistent with the memorandum submitted to the Board dated October 26, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 180 days from the date of authorization by the Board of Directors; and

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

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

EXHIBIT A – CONSTRUCTION FACILITY TERM SHEET

[**REDACTED**]

EXHIBIT B – FCE FINANCIAL STATEMENTS

[**REDACTED**]

EXHIBIT C – PRO FORMA MODEL

[REDACTED]

310 Wilson Avenue: A C-PACE Project in Norwalk, CT

Address	310 Wilson Avenue, Norwalk CT 06854			
Owner	310 Wilson Avenue LLC C/O Spinnaker Real Estate Partners			
Proposed Assessment	$1,024,636			
Term (*years*)	20			
Term Remaining (*months*)	Pending construction completion			
Annual Interest Rate[1]	6.125%			
Annual C-PACE Assessment	$90,168			
Savings-to-Investment Ratio	1.09			
Average DSCR	[redacted]			
Lien-to-Value	[redacted]			
Loan-to-Value	[redacted]			
Projected Energy Savings (mmBTU)		EE	RE	Total
	Per year		1,241	1241
	Over term		24,834	24834
Estimated Cost Savings (incl. ZRECs and tax benefits)	Per year		$98,084	$98,084
	Over term		$1,961,694	$1,961,694
Objective Function	24.24 kBTU / ratepayer dollar at risk			
Location	Norwalk			
Type of Building	Warehouse & storage			
Year of Build	1980			
Building Size (*sf*)	128,100			
Year Acquired by Owner	2008			
As-Complete Appraised Value[2]	[redacted]			
Mortgage Lender Consent	[redacted]			
Proposed Project Description	312.7 kW of solar PV			
Est. Date of Construction Completion	Pending closing			
Current Status	Awaiting Board of Directors Approval			
Energy Contractor	[redacted]			
Notes				

[1] *Does not account for 365/360 interest convention*

[2] *2014 appraisal value of $12,250,000 plus 50% of the CPACE investment hard costs*

845 Brook Street
Rocky Hill, Connecticut 06067

300 Main Street, 4th Floor
Stamford, Connecticut 06901

T: 860.563.0015
F: 860.563.4877
www.ctcleanenergy.com

Small Business Energy Advantage

Recapitalization with Private Sector Funds

Due Diligence Package

October 26, 2018

Document Purpose: This document contains background information and due diligence on the recapitalization of the Small Business Energy Advantage program and the organizations involved, including Eversource Energy, United Illuminating, Amalgamated Bank, the Connecticut Green Bank, and the CT Energy Efficiency Board. This information is provided to the Connecticut Green Bank Board of Directors for the purposes of reviewing and approving recommendations made by the staff of the Connecticut Green Bank.

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

Program Qualification Memo

To:	Connecticut Green Bank Board of Directors
From:	Anthony Clark, Associate Director, Commercial, Industrial and Institutional Programs; Laura Fidao, Senior Manager, Clean Energy Finance
Cc:	Bryan Garcia, President & CEO; Bert Hunter, EVP & CIO, Clean Energy Finance; Mackey Dykes, Vice President, Commercial, Industrial and Institutional Programs
Date:	October 26, 2018
Re:	Recapitalization of Small Business Energy Advantage Program

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Background & Summary

The Small Business Energy Advantage ("SBEA") program is part of the Energize CT initiative and is jointly managed by The Connecticut Light and Power Company d/b/a Eversource Energy ("Eversource") and The United Illuminating Company ("UI", and together with Eversource, the "Utilities"). The program commenced in 2000 and includes a financing component that provides interest-free loans to commercial, industrial, and municipal customers in Eversource and UI territories undertaking energy efficiency retrofit projects. The general parameters for SBEA loans are: up to 4 years in term; up to $100,000 per electric meter for commercial and industrial customers or $500,000 for municipalities; and repaid on the customer's electric bill.

The program generates annual loan volume of approximately $28 million.[1] The loans are funded through a mix of Eversource and UI balance sheet capital and funding from the Connecticut Energy Efficiency Fund ("CEEF"). In addition to providing a portion of the capital for the loans, CEEF funding is used to provide an interest rate buy-down on the utilities' cost of capital (making customer-facing loans interest-free), reimbursement for all loan losses, and reimbursement for administrative expenses associated with running the SBEA program.

The Joint Committee of the CT Energy Efficiency Board ("EEB") and Connecticut Green Bank ("Green Bank") identified sourcing lower cost capital from the private sector as a priority initiative as a means to alleviate stress to utility balance sheets, reduce CEEF interest-rate buy-down expenses, and increase the loan capital available to small business, municipal and state efficiency measures through the SBEA program. The Utilities and the Green Bank began deliberate work to source private sector capital in 2016 to achieve these goals while maintaining the current successful aspects of the program, including a streamlined process for participating customers and contractors. Continued Utility approval/underwriting of customer loans, on-bill repayment, simple customer agreements, maintaining existing loan term and size limits were all key features to be carried forward to expedite the transition to private capital at beneficial (e.g. low-cost and flexible) terms.

[1] As of the end of the 2016 calendar year.

In July 2018, we presented an update to the Board regarding the results of the second SBEA recapitalization RFP undertaken in May 2018. This memo provides a further update on that process and requests the funding commitment needed from the Green Bank to move forward with establishing the SBEA Loan Purchase Facility that has garnered support from Eversource, the EEB, and Green Banks staff.

Refreshed RFP Results

The second RFP was open from May 2, 2018 to May 23, 2018 and garnered four responses (Amalgamated Bank, JP Morgan, M-Core and Verdant). Proposed solutions included financing for both the existing Eversource portfolio of loans and the newly originated loans from both Eversource and UI territories. Options for newly originated loans included both direct financing from a new third-party financing structure and options to purchase loans after being originated by Utilities. Following review by the Utilities, EEB and Green Bank, the proposal from Amalgamated Bank was chosen as the preferred solution.

The key benefits of the Amalgamated Bank as compared to the other proposals were:

- Delivers lowest overall cost of capital and greatest savings to CEEF budget
- Retains existing utility origination and contractor payment processes
- Does not require a new special purpose entity
- Does not require CEEF to fund a reserve account
- Leverages Green Bank participation to reduce risk and improve financing terms for CEEF
    - 10% of funds raised to be provided by Green Bank
    - Green Bank to be subordinated to Amalgamated as Senior Lender
    - Green Bank to earn same rate of interest as Senior Lender
    - Estimated FY 2019 participation of $4 million

The key benefits of the Amalgamated proposal as compared to the current financing process at Eversource include a lower overall cost of capital, savings of nearly $6 million on a cost of capital basis over the lifetime of loans originated within the initial 3-year period, and cash flow savings to CEEF of $2.7 million versus business-as-usual over the same 3-year period.

Proposed SBEA Loan Purchase Facility Description

The proposed financing solution by Amalgamated Bank provides a 3-year commitment to purchase "Qualifying Loans" as defined in the appended term sheet, which includes both existing Eversource SBEA loans and loans originated by Eversource after the "Closing Date" (as both terms are defined in the appended term sheet). Through the agreement, Amalgamated will purchase an undivided 90% interest and the Green Bank will purchase an undivided 10% interest in all SBEA "Qualifying Loans" originated by the Eversource that meet established underwriting and servicing requirements. The shared goal of the Utilities, Green Bank, EEB and Amalgamated is to close on this facility and complete the buyout of the existing Eversource SBEA loan portfolio by the end of 2019. Our intention is to then use this facility with Amalgamated and Eversource as a template for putting in place a similar solution to address United Illuminating's SBEA recapitalization needs.

The solution delivers a commitment to purchase up to $55 million worth of SBEA Qualifying Loans originated by Eversource. Amalgamated's maximum exposure will be $50M and the Green Bank's will be $5M, or 10% of the total capital made available through this facility. Under this Loan Purchase Facility,

Amalgamated and the Green Bank will purchase Qualifying Loans and rights to the repayment stream with Eversource in the role of servicer for on-bill repayment. The price for all Qualifying Loans purchased before the first anniversary of the Closing Date will be the total par amount of such loans discounted at [redacted]. The price for all Qualifying Loans purchased on or after the first anniversary of the Closing Date will be the total par amount of such loans discounted at a rate of either [redacted] or [redacted] to be determined by the first anniversary of the Closing Date. We envision future loan purchases to occur on a quarterly basis as Eversource builds a pool of loans and prepares them for purchase through the proposed facility.

In the event of delayed payments, shortfalls, or non-payments, the Green Bank's 10% interest will be subordinated to Amalgamated's 90% interest in the Qualifying Loans as established in the "Distribution of Payments" section of the appended term sheet. The Green Bank's subordinated interest represents the full protection against losses for Amalgamated. As was the case with the previous facility proposed to the Board, the Green Bank will be protected from loan losses by a guarantee from Eversource, as agent of CEEF, to provide reimbursement to the Green Bank for any SBEA loan losses which the Green Bank has absorbed as part of 10% subordinated position in the SBEA Loan Purchase Facility.

The Green Bank's participation in this facility achieved the desired and long-sought objective of both the Utilities and EEB to limit the extent of loan loss guarantee the CEEF provided for SBEA loans. The winning proposal with JP Morgan chosen through the first SBEA recapitalization RFP included a continuance of the present full CEEF backstop of losses. By serving in a subordinated position in the facility and having only our losses backstopped, the Green Bank provides a useful buffer role that provides sufficient protection to Amalgamated while the cap on loss indemnification to Green Bank's 10% funding contribution limits CEEF's exposure to loan losses. As with the prior structure, there is no protection for the Green Bank should the CEEF be defunded to the extent that the CEEF is impaired in its ability to cover Green Bank loan deficiencies. Green Bank considers this political risk tolerable under the circumstances – particularly for a highly effective program with limited loan loss experience like SBEA.

Green Bank Role

The Green Bank role in this Loan Purchase Facility is simpler and less onerous than the previously proposed facility. In the previous facility, the Green Bank was to oversee capital facility management, administration and management of a Green Bank-created SPV, and provision of $3 million in an equity contribution to fund customer loans and provide liquidity cushion within the facility. For the currently proposed Loan Purchase Facility, the role and responsibilities of the Green Bank will be limited to serving as an investor in the Facility and undertaking administrative activities related to loan purchases, verifying payments to the Green Bank, and pursuing cost recovery from Eversource as the agent of the CEEF when and if needed.

Provision of Capital into the Loan Purchase Facility

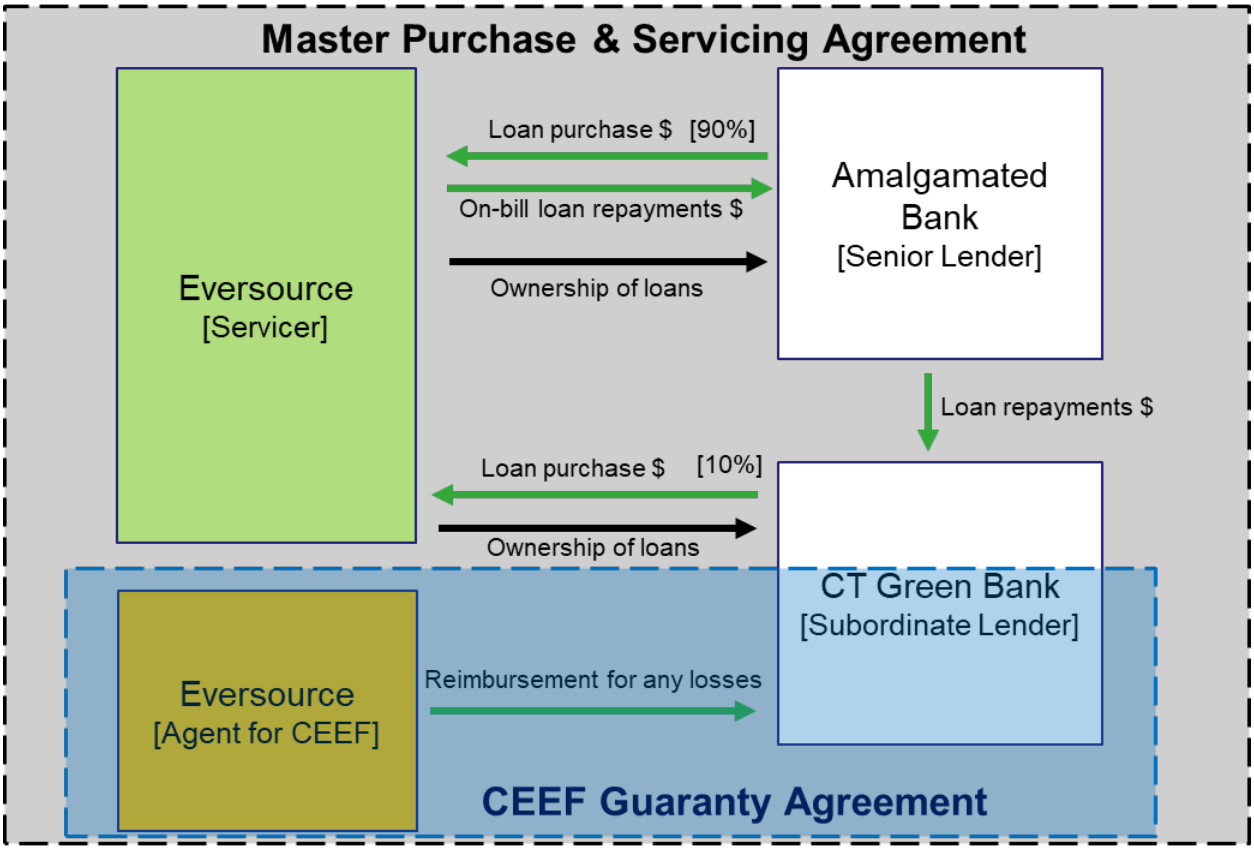
The Green Bank will invest up to $5 million into the Loan Purchase Facility to be used for purchase of SBEA Qualifying Loans. The Green Bank's interest in the facility will remain subordinated to Amalgamated's interest and will be compensated at the interest rate outlined in the appended term sheet.

Green Bank capital has been structured to address liquidity needs such as mitigating timing considerations with respect to under or missed payments on the part of SBEA borrowers and to protect Amalgamated against such losses up to the Green Bank's 10% interest.

The capital needed to purchase the existing portfolio of approximately $32 million in Eversource SBEA Qualifying Loans and the projected loan volume during the term of the 3-year Facility is predicted to be slightly less than $55 million. Staff is requesting a $5 million Green Bank allocation to enable deployment of the full $50 million commitment available from Amalgamated and meet our 10% interest requirement should SBEA loan volume be sufficient to require the Facility maximum size.

Figure 1 below depicts the overall structure of the proposed recapitalized SBEA program with new components of the proposed Green Bank arrangements depicted in the grey area.

Figure 1: SBEA Recapitalization Facility structure.



CEEF Background and Operations

In 1998, the Connecticut General Assembly passed Public Act 98-28 which created the Connecticut Energy Efficiency Fund. Every three years the Utilities submit to the Department of Energy and Environmental Protection (DEEP) for approval and subsequently to the Public Utilities Regulatory Authority ("PURA"), for funding the Conservation and Load Management Plan ("C&LM Plan") in accordance with Connecticut General Statutes Section §16-245m. The C&LM Plan outlines their implementation plan for cost-effective electric and natural gas energy-efficiency programs and market transformation initiatives using CEEF funds. The C&LM Plan and CEEF spending is reviewed before submittal to DEEP by the Energy Efficiency Board ("EEB") which is an appointed group of 15 members from public and private entities. Utilities are thus incented, via regulatory oversight, to optimize the deployment of energy efficiency measures in their given service territories.

The C&LM Plan provides, in part, for certain credit enhancements and support to the SBEA Program from CEEF funding. CEEF is funded by: (1) a 3 mill rate charge on electricity rate payers in Connecticut, (2) the Conservation Adjustment Mechanism ("CAM", an additional charge from both electric and gas customers), (3) funds from the Regional Greenhouse Gas Initiative ("RGGI"), and (4) funds from the Independent System Operator New England's ("ISO-NE") forward capacity market. The estimated CEEF budget for 2016 through 2018 is illustrated in Figure 2 below.

Figure 2: 2016-2018 CEEF Budget from both Electric and Natural Gas Revenue Sources

	2016 ES CT Electric Revenues	2016 UI Revenues	2016 Combined Total	2017 ES CT Electric Revenues	2017 UI Revenues	2017 Combined Total	2018 ES CT Electric Revenues	2018 UI Revenues	2018 Combined Total
Collections (Mill Rate)	$66.7	$15.9	$82.6	$66.8	$15.7	$82.5	$65.8	$15.5	$81.4
ISO New England	$9.7	$2.7	$12.4	$20.2	$5.2	$25.4	$20.4	$4.5	$24.9
RGGI	$16.7	$4.2	$20.8	$17.1	$4.3	$21.4	$17.5	$4.4	$21.9
CAM (Net of Gross Receipts Tax)	$62.0	$14.8	$76.9	$62.1	$14.6	$76.7	$61.2	$14.5	$75.7
TOTAL (Energy Efficiency Revenues)	**$155.1**	**$37.6**	**$192.7**	**$166.2**	**$39.8**	**$206.0**	**$164.9**	**$39.0**	**$203.9**

* In millions.

Natural Gas Energy Efficiency Revenues	2016 Conservation Adjustment Mechanism	2017 Conservation Adjustment Mechanism	2018 Conservation Adjustment Mechanism
Eversource CT Gas Revenues	$20.4	$24.2	$26.9
Connecticut Natural Gas Revenues	$15.9	$16.6	$17.3
Southern Connecticut Gas Revenues	$11.4	$14.1	$14.7
Total Energy-Efficiency Revenues	**$47.7**	**$54.9**	**$59.0**

* In millions.

CEEF is a "virtual" fund (i.e. not held by a legal entity formed specifically for the purposes of the CEEF) which sits on the Utilities' balance sheets and is allocated to specific programs per the approved C&LM Plan. From 2013 through 2015, the Utilities have used an average of approximately $162,000 per year of CEEF funds for reimbursement of loan losses. Over this same period, they also received an average of $2.8m per year for the interest rate buy-down. The CEEF funding used for the SBEA program is a small percentage of the approximately $230 million average annual overall CEEF budget over this same period.

The Utilities budget annually in advance for the anticipated SBEA loan losses, interest rate expenses, and administrative costs. In the proposed recapitalized SBEA program, annual CEEF budget requirements will be estimated by the Utilities and reviewed together with the Green Bank. The three principal SBEA-related costs for the CEEF budget and their application in the proposed recapitalized SBEA program are described below.

- **Interest rate expense**: Budget for the discount to Qualifying Loan value determined prior to each loan portfolio sale to Amalgamated and the Green Bank through the Loan Purchase Facility.
- **Loan losses**: Loan losses will initially be absorbed by the Green Bank's subordinated interest. Once a loan has been declared written off by the utilities, the full outstanding repayment requirement will be drawn from CEEF and transmitted to the Green Bank to reimburse its loss.
- **Administrative costs**: Administrative expenses incurred by Amalgamated and the Green Bank as outlined in the appended term sheet.

In the event that the overall annual CEEF budget allocated to the SBEA program is not sufficient to meet obligations to the Green Bank in any given year, any deficit would be included in and reimbursed to the Green Bank as part of the subsequent years' CEEF budget allocation process. The above mentioned operational details and cash flow requirements will be memorialized in a Funding Agreement to be signed between Eversource and the Green Bank.

Strategic Plan

Is the program proposed, consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?

The proposed SBEA recapitalization is cleanly aligned with the first of the Green Bank's statutory purposes cited in the Comprehensive Plan to develop programs to finance clean energy investment in municipal and small business projects. Developing a recapitalization solution for the SBEA through a Utility / Green Bank Small Business Partnership is highlighted as a priority objective in the Public-Private Partnership section of the Comprehensive Plan and included as an area of strategic importance for the CI&I team. In addition, sourcing an alternate and lower cost source of capital for the SBEA program is one of the EEB / CGB Joint Committee's goals incorporated into our Comprehensive Plan.

Ratepayer Payback

How much clean energy is being produced (i.e. kWh over the projects lifetime) from the program versus the dollars of Green Bank ratepayer funds at risk?

Assuming SBEA program activity and project volume is similar to recent years, the lifetime energy savings for each year's worth of projects will be approximately 507 million kWh realized by placing approximately $5 million of Green Bank ratepayer funds at risk.

Ratepayer Fund Terms and Risks

What are the terms and maximum risk exposure of ratepayer funds for the program?

There are two pools of ratepayer funds incorporated into this proposal to recapitalize the SBEA program from both the Green Bank and CEEF.

Green Bank:

The Green Bank proposes an initial commitment of $5 million to purchase SBEA Qualifying Loans through the Loan Purchase Facility. The Green Bank capital will be backstopped by CEEF funds for any losses. Green Bank capital would only be at risk in the event that there is catastrophic failure of the CEEF (as explained above) which could impair the CEEF's ability to reimburse Green Bank for losses, interest expenses, or administrative expenses. If this were to occur, the Green Bank would expect that upon remediation of any CEEF failure (including the creation of any CEEF successor) the Green Bank would be reimbursed for outstanding costs.

CEEF:

The CEEF funds are currently being used to support the existing SBEA program and will continue to be used for interest rate expense, loan losses, and administrative expenses under the recapitalized SBEA structure. The CEEF is projected to realize savings of nearly $6 million on a cost of capital basis over the lifetime of loans originated within the 3-year period and cash flow savings of $2.7 million. The difference between these two figures derives from the "front loading" of interest expense for loans sold to the SBEA Loan Purchase Facility versus the business as usual case of paying interest expense as it is incurred during the full term of an outstanding SBEA loan.

Financial Statements

How is the program investment accounted for on the balance sheet and profit and loss statements?

Investment of funds into the Loan Purchase Facility are accounted for by a reduction in the Green Bank Cash and Cash Equivalents Account (Current Asset on the Balance Sheet) and a corresponding increase in "Capital Contribution – [SBEA]" (Non-Current Asset on the Balance Sheet).

Target Market

Who are the end-users of the engagement?

SBEA loans are available to small business, industrial, and municipal customer located in Eversource or UI territory within the State of Connecticut who have an average 12-month peak electricity demand

between 10kW and 200kW. This facility will serve SBEA customers in Eversource territory and is intended as a template for developing a similar solution for customers in UI territory.

Program Partners

Program partners include:

- Amalgamated Bank
- CT utilities: Eversource only

Amalgamated Bank

Description

Amalgamated is America's largest B Corporation[2] bank with $4 billion in assets and a history reaching back 95 years. Amalgamated's stated mission is to be America's socially responsible bank, which includes addressing climate change and supporting growth of clean and green energy.

Strategic Needs Addressed by the Proposed Program & Experience with Similar Programs

Amalgamated demonstrated great enthusiasm with their initial proposal submission and responded with favourable improvements to the terms of their offer during our continued negotiations with all bidders, ultimately leading to their offering the lowest cost proposal. Further, Amalgamated's agreement to limit CEEF's total exposure to loan losses to cover only the Green Bank's 10% interest represented an important evolution in and maturity of the treatment of losses in the SBEA program.

Amalgamated's balance sheet is sufficiently large to support future SBEA facility renewal and growth.

Leadership & Board of Directors

- President & CEO: Keith Mestrich
- Chief Risk Officer: Mark Pappas
- Chief Financial Officer: Drew LaBenne
- General Counsel: Deborah Silodor
- Board of Directors: Lynne Fox (Chair), Donald Bouffard, Maryann Bruce, Patricia Diaz Dennis, Robert Dinerstein, Mark Finser, Julie Kelly, John McDonagh, Keith Mestrich, Robert G. Romasco, Edgar Romney, Steve Sleigh, and Stephen J. Toy.

Competitive Selection and Award

- **Cost of Capital** – lowest cost capital solution and greatest savings to CEEF

[2] B Corporations are a new kind of business that balances purpose and profit. They are legally required to consider the impact of their decisions on their workers, customers, suppliers, community, and the environment.

- **Special Capabilities** – proposed most flexible solution retaining existing utility origination and contractor payment processes, avoiding need for a new special purpose entity, and eliminating need for CEEF to fund a reserve account
- **Strategic Importance** – Amalgamated has a public commitment to social responsibility and displayed an eagerness to be involved in the financing of energy efficiency loans and to leverage Green Bank participation to reduce risk and improve financing terms for CEEF and ratepayers
- **Timing –** Amalgamated has displayed a willingness to close on the Facility by the end of the year as desired by Eversource, the EEB and the Green Bank

Financial Condition/Funding Sources & Stability

Financial highlights from Amalgamated's 10-Q for quarter ending June 30, 2018:

Item 1. – Financial Statements
Consolidated Statements of Financial Condition
(Dollars in thousands)

Assets	As of June 30, 2018 (Unaudited)	As of December 31, 2017
Cash and due from banks	$ 20,650	$ 7,130
Interest-bearing deposits in banks	141,369	109,329
Total cash and cash equivalents	162,019	116,459
Securities:		
Available for sale, at fair value	1,119,568	943,359
Held-to-maturity (fair value of $4,124 and $9,718, respectively)	4,123	9,601
Loans held for sale, at fair value	19,272	-
Loans receivable, net of deferred loan origination fees	3,122,064	2,815,878
Allowance for loan losses	(35,353)	(35,965)
Loans receivable, net	3,086,711	2,779,913
Accrued interest and dividends receivable	13,190	11,177
Premises and equipment, net	23,430	22,422
Bank-owned life insurance	78,284	72,960
Deferred tax asset, net	39,652	39,307
Goodwill and other intangible assets	23,021	-
Other real estate owned	844	1,907
Other assets	37,820	44,057
Total assets	$ 4,607,934	$ 4,041,162

Liabilities and Stockholders' Equity		
Deposits	$ 3,962,436	$ 3,233,108
Borrowed funds	141,675	402,605
Accrued interest payable	1,410	1,434
Other liabilities	96,102	59,947
Total liabilities	4,201,623	3,697,094
Commitments and contingencies		
Stockholders' equity:		
Preferred Stock:		
Class B - par value $100,000 per share; 77 shares authorized; 67 shares issued and outstanding as of December 31, 2017	-	6,700
Common Stock:		
Class A - par value $.01 per share; 42,000,000 shares authorized; 31,771,584 and 28,060,980 shares issued and outstanding, respectively (1)	318	281
Additional paid-in capital (1)	300,913	243,771
Retained earnings	118,759	99,506
Total accumulated other comprehensive loss, net of taxes	(13,813)	(6,324)
Total Amalgamated Bank stockholders' equity	406,177	343,934
Noncontrolling interests	134	134
Total stockholders' equity	406,311	344,068
Total liabilities and stockholders' equity	$ 4,607,934	$ 4,041,162

(1) effected for stock split that occurred on July 27, 2018

Risks and Mitigation Strategies

Credit Risk: The Green Bank's exposure to credit risk of underlying loan customers is fully borne by CEEF absorbing all losses. Amalgamated as the senior lender within the SBEA Loan Purchase Facility remains a low risk given the size of its balance sheet and long history of operating through a variety of extreme market events.

Origination Risk: The utilities originate and approve customer SBEA loans based on historic bill repayment history. The utilities have a light-touch underwriting process in place based on bill repayment history and have noted continued strong demand for the SBEA loans by customers. It is anticipated that loan origination will continue to remain steady and is likely to continue to climb as the program is reinvigorated with private sector capital.

Political Risk: Political risk in the form of a raid by the State of Connecticut on CEEF funds for budgetary purposes is a viable concern for this program. The loan purchase structure of this facility that incorporates the cost of capital as a discount at the time of sale of a loan portfolio mitigates against the risk of CEEF not being able to reimburse future interest expenses. Green Bank capital will be at risk in the event of CEEF failure, but the Green Bank will enter an agreement with Eversource as an agent of the CEEF requiring all reasonable efforts be made for reimbursement or compensation from CEEF or a CEEF successor entity.

Participation of Amalgamated Bank and Senior Lender(s): As long as the credit risk exposure for the Green Bank of the SBEA program remains as designed in this facility (i.e. backstopped by CEEF for our full interest of 10%), we expect Amalgamated to be able to continue in its role within the facility and renew the facility after the initial three-year period.

In the event that Amalgamated did not want to renew the facility and the credit profile of the SBEA structure remains as is, the Green Bank has no reason to believe there would be issue finding an alternative capital provider given the strength of responses received during the RFP process. In the event that the credit profile of the SBEA structure does change, such as if the CEEF fund is no longer available to provide loan losses, the Green Bank expects that other capital providers would be willing to provide capital under modified terms and conditions given the added risk. The utility on-bill repayment aspect of the SBEA loan program provides added confidence to capital providers given that utility bills are generally viewed as a required operating expense by small business, industrial, and municipal customers who would pay above other bills to keep the lights running.

Resolutions

WHEREAS, pursuant to Conn. Gen. Stat. Section 16-24n the Connecticut Green Bank ("Green Bank") has a mandate to develop programs to finance clean energy investment for small business, industrial, and municipal customers in the State;

WHEREAS, recapitalizing the Small Business Energy Advantage ("SBEA") program with private sector capital is a recognized priority in the Green Bank's Comprehensive Plan and is a goal of the CT Energy Efficiency Board and Green Bank Joint Committee;

WHEREAS, The Connecticut Light and Power Company d/b/a Eversource Energy and The United Illuminated Company (together, the "Utilities") have requested the Green Bank's assistance sourcing low cost private sector capital;

WHEREAS, the Green Bank released a Request for Proposals for Small Business Energy Advantage Program Alternative Financing Solutions (the "RFP") on May 2, 2018;

WHEREAS, Amalgamated Bank responded to the RFP with a comprehensive and flexible solution offering the lowest cost capital to recapitalize the SBEA program;

WHEREAS, Green Bank staff, together with Utility staff and the EEB, has selected Amalgamated's proposal to recapitalize the SBEA program and now recommends that the Green Bank support the recapitalized SBEA Loan Purchase Facility by committing $5 million to the facility structure; and

WHEREAS, Eversource will continue to make funding available from the Connecticut Energy Efficiency Fund ("CEEF") to reimburse loan losses and administrative costs associated with the recapitalized SBEA program.

NOW, therefore be it:

RESOLVED, that the President of the Green Bank and any other duly authorized officer of the Green Bank, is authorized to execute and deliver agreements with the relevant parties (including but not limited to Amalgamated, the Utilities, and CEEF) to invest in the SBEA Loan Purchase Facility with terms and conditions materially consistent within the memorandum submitted to the Board dated October 26, 2018, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 270 days from the date of authorization by the Board; and

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

Submitted by: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Mackey Dykes, Vice President, Commercial, Industrial & Institutional Programs; Anthony Clark, Associate Director, Commercial, Industrial & Institutional Programs; Laura Fidao, Senior Manager, Clean Energy Finance

Amalgamated Term Sheet

[REDACTED]

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

CONNECTICUT GREEN BANK

Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP and CIO, Mike Yu, Associate Director, Clean Energy Finance, Louise Venables, Senior Manager, Clean Energy Finance

CC: Bryan Garcia, President and CEO; Brian Farnen, General Counsel and CLO; Dale Hedman, Managing Director of Statutory & Infrastructure Programs; Eric Shrago, Director of Operations, George Bellas, Vice President of Finance and Administration

Date: October 26, 2018

Re: SHREC Securitization Update

In a memo to the Connecticut Green Bank ("Green Bank") Board of Directors dated April 27, 2018, staff provided an update on its Solar Home Renewable Energy Credit ("SHREC") monetization efforts. Updates included:

- Status of submission to the utilities of a second tranche of residential solar PV systems
- Recommendation to arrange a short-term SHREC Warehouse Facility
- Recommendation to enter into an asset backed securitization ("ABS") of the SHREC receivables across Tranches 1 and 2 (approximately 14,000 residential solar PV systems totaling 94.8MW of clean energy).

Since the April 27 memo, and after obtaining Board approval to arrange the SHREC Warehouse Facility and enter into the SHREC ABS, the following milestones have been achieved:

Milestone	Achieved
Appointment of DNV-GL as the Independent Engineer ("IE") for the SHREC ABS	March
Appointment of CAR-Kestrel to provide social impact and green bond verification services for the SHREC ABS	April
Appointment of Royal Bank of Canada Capital Markets ("RBC") as sole structuring and placement agent in connection with the SHREC ABS	May
Utility approval of Tranche 2, which comprises 7,258 SHREC-producing residential solar PV systems	July
Closure of a [redacted] SHREC Warehouse Facility with Webster and Liberty Bank	August
Appointment of Kroll as the rating agency for the SHREC ABS	August
Appointment of KPMG as the agreed upon procedures ("AUP") provider for the SHREC ABS	October
Discussions held with six investors interested in purchasing the securities issued in the SHREC ABS	Sep - Oct 2018

It's expected that a final executed and placement of a security occur in early- to mid-December. Major milestones between now and final close include:

- Receipt of preliminary Kroll feedback (by November 2)
- Finalization of structure based on Kroll feedback (by November 9)
- Draft and finalization off offering memorandum and other marketing materials (by November 16)

- Prepare reporting requirements, completion of audit and due diligence (by November 16)
- Deal roadshow and solicitation of investor feedback (between November 16 and November 23)
- Finalization of deal documentation (by December 7)
- Receipt of Kroll Rating Letter (by December 13)
- Price and close transaction (by December 14)

The expected size of the bond is still expected to be between [redacted] and [redacted] with the sizing to be determined by the appropriate advance rate recommended by Kroll to achieve an investment grade rating (BBB or higher).

[redacted]

Appointment of RBC

RBC has been appointed through a competitive RFP process to structure, arrange and secure funding in accordance with a proposed permanent ABS financing of Tranche 1 and Tranche 2 of the SHREC program as described in the Confidential Memorandum to the Board of Directors dated April 27, 2018 (Appendix I). To date, RBC's services have included arranging meetings with potential investors, managing data and information requests from the rating agency, providing introductions to assist in the selection of an AUP provider, advice on legal structuring, and general timing and project management.

SHREC Warehouse Facility

On June 29, 2018, the Green Bank entered into an agreement with Webster Bank, National Association ("Webster") and Liberty Bank ("Liberty") in which Webster and Liberty agreed to equally fund a non-revolving credit facility. The aggregate commitment under the facility totals [redacted], which is being used to provide bridge funding until the SHREC ABS closes. The facility expires one year from the closing date.

To date, two draws have been made against the facility, amounting to [redacted]

Utility approval of Tranche 2

According to Master Purchase Agreements with the two Connecticut utilities (Eversource and United Illuminating), all SHRECs produced by qualified residential solar PV systems are sold for a fixed price over a 15-year term. To be officially labelled as SHREC-producing, residential solar PV systems are

allotted to tranches and the details of each system in the tranche are listed in an exhibit to each of the Master Purchase Agreements. Effective July 15, 2018, the second batch of systems were tranched and added to the Master Purchase Agreements. Tranche 2 comprises 7,258 residential solar PV systems that have a combined nameplate(ac) capacity of 53.0 MW.

With Tranche 2 now formalized in the Master Purchase Agreements, Connecticut Green Bank is set to earn approximately [redacted] of gross SHREC revenue over the 15-year life of the tranche, based on a price of [redacted] per SHREC.

Independent Engineer – DNV-GL

An IE report is required in support of the SHREC ABS. It provides comfort to the rating agency and potential investors over the integrity of the residential solar PV systems that are producing the electricity and generating SHRECs. DNV-GL, an international consulting firm with experience in solar PV-backed securitizations, was selected as the IE through a competitive bid process.

DNV-GL opted to issue two IE reports, one for each tranche. Each report includes:

- Review of major equipment (modules, inverters, and meters) used in the solar PV systems, to confirm reliability and industry reputation.
- Analysis of production (kWh) of the tranched solar PV systems, to confirm the accuracy of the Green Bank's energy production estimates and to set expectations for future production of these systems.
- Review of operating system, by completing an electrical design audit for a sample of systems within each tranche, for the purpose of confirming consistency with the Green Bank's processes, and identifying any specific issues or risks.
- Review of technical inputs to the calculation of revenue and expenses associated with the Residential Solar Investment Program ("RSIP").

To date, DNV-GL has completed the IE report for Tranche 1 and the report for Tranche 2 is in final draft format.

Rating Agency - Kroll

Kroll was appointed as the rating agency for the SHREC ABS on the advice of RBC, due to its experience and comfort in rating non-standard bonds. The SHREC ABS is considered non-standard, or esoteric, because it is the first bond to be issued that involves the securitization of revenue from the sale of renewable energy certificates.

To date, Kroll has not provided formal feedback on the expected bond rating because the Tranche 2 IE report is yet to be finalized. RBC advises that the rating is not expected to be higher than the rating of either Eversource (A) or United Illuminating (BBB), who contracted to purchase all SHRECs from Tranche 1 and 2 solar PV systems under the Master Purchase Agreements.

AUP Provider – KPMG

Following a strategic selection process, KPMG was appointed as the AUP provider. KPMG will select a sample of 125 solar PV systems across Tranches 1 and 2 and confirm that there is supporting documentation, from independent third parties, for details that will be disclosed about the systems in

the offering memorandum for the bond. Example details that KPMG will verify are the system size (kW capacity), expected production, and manufacturer of equipment used. KPMG will also work with RBC to re-calculate transaction structuring information that is included in the offering memorandum. AUP work will begin in the second half of October, 2018.

Social Impact and Green Bond Verifier – CAR-Kestrel

Nine firms responded to a request for proposals for a solution that would verify that the SHREC ABS is 'green' and provides societal benefit. Two firms, CAR and Kestrel Verifiers ("Kestrel"), combined to offer a winning solution. CAR is providing the social impact statement and Kestrel is providing green bond verification, in accordance with the international standard issued by the Climate Bonds Initiative.

To date, CAR has provided the draft social impact statement and Kestrel has made an initial documentation request. The social impact statement focuses on the future reductions of air pollutants (e.g., greenhouse gas emissions, SOx, NOx, and PM) as a result of these solar PV systems as well as the associated public health improvements from cleaner air (e.g., reduced hospitalizations, sick days, etc.) Green bond verification work will be undertaken when there is a substantive draft of the offering memorandum.

Investor Discussions

Between September 23 and 25, 2018, members of the Clean Energy Finance team accompanied the CIO to an industry conference, ABS East. RBC arranged for discussions, at the conference and in the days following, with six investors interested in purchasing the SHREC ABS bond. Interested investors included insurance companies, asset managers, and a religious-based investment fund. Discussions were positive with all investors requesting to be updated as the issuance approaches.

CONNECTICUT GREEN BANK SM

845 Brook Street
Rocky Hill, CT 06067

300 Main Street, 4th Floor
Stamford, CT 06901