



**CLEAN ENERGY**  
**FINANCE AND INVESTMENT AUTHORITY**

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July 11, 2014

Dear Connecticut Green Bank Board of Directors:

Our next meeting of the Board of Directors will be on Friday, July 18, 2014 from 9:00 to 11:00 a.m. in the Colonel Albert Pope Board Room of the Connecticut Green Bank at 845 Brook Street, Rocky Hill, CT 06067.

We have a very full agenda, including:

- **Comprehensive Plan** – we will review the final adjustments to the Comprehensive Plan per the guidance and feedback from the last Board of Directors meeting. We have attached a red-line version with edits based on your feedback. Please take note of the revised vision statement. We attempted to be Connecticut-focused, aspirational, and succinct. If you have any comments beforehand, please let me know.
- **Committee Updates and Recommendations** – we have a number of items to cover resulting from various committee reviews and recommendations from the Audit, Compliance and Governance Committee, Budget and Operations Committee, Deployment Committee, and Joint Connecticut Energy Efficiency Fund and Connecticut Green Bank Committee.
- **Commercial Sector Programs** – we are bringing a number of C-PACE transactions for approval. These projects are all located in different towns demonstrating how well C-PACE is progressing at the local level. We want to also revisit the Amgraph Packaging C-PACE proposal for a fuel cell. You might recall that we pulled this transaction in light of the bankruptcy of Clear Edge. The team has been working with the property owner to support a fuel cell deployment at the manufacturing facility. We are also bringing forth a Clean Energy Business Solutions project with our partner the Department of Economic and Community Development (DECD) for Cartus.
- **Statutory and Infrastructure Sector Programs** – on the district heating and cooling side of our efforts, we are bringing forth a \$340,000 predevelopment loan for Bridgeport, Connecticut. This project received a \$50,000 feasibility study loan to assess the viability of a district heating and cooling loop in the city and is now ready for predevelopment.
- **Sector Updates** – we have assembled progress to target update memos for each of our four (4) sectors. We have made excellent progress, which we will discuss. We will also feature our residential sector programs with Kerry O'Neill to discuss the progress we are making there and to solicit your feedback and guidance.
- **Other Business** – I will be requesting the promotion of a senior staff member, Mackey Dykes, from Chief of Staff to Vice President and COO. He has been doing an

outstanding job leading our efforts to build a high-performing organization that is delivering on the promise of a green bank.

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

Have a great weekend and we look forward to seeing you next week.

Sincerely,

A handwritten signature in blue ink, appearing to read 'B. Garcia', with a long horizontal flourish extending to the right.

Bryan Garcia  
President and CEO



# CLEAN ENERGY

## FINANCE AND INVESTMENT AUTHORITY

### AGENDA

Board of Directors of the  
Clean Energy Finance and Investment Authority  
845 Brook Street, Rocky Hill, CT 06067

Friday, July 18, 2014  
9:00-11:00 a.m.

Staff Invited: Jessica Bailey, George Bellas, Andy Brydges, Mackey Dykes, Brian Farnen,  
Bryan Garcia, Dale Hedman, Bert Hunter, and Kerry O'Neill

1. Call to order
2. Public Comments – 5 minutes
3. Approval of meeting minutes for June 20, 2014\* – 5 minutes
4. Update from the President – 5 minutes
5. Committee Updates and Recommendations\* – 35 minutes
  - a. Deployment Committee and Audit, Compliance and Governance Committee Recommendation\* – 5 minutes
  - b. Budget and Operations Committee Recommendations\* – 5 minutes
  - c. Audit, Compliance and Governance Committee Recommendations\* – 15 minutes
    - i. CT Solar Lease Audit – Calendar Year 2013\* – 5 minutes
    - ii. Adjustments to the Bylaws\* – 5 minutes
    - iii. Adjustments to the Operating Procedures\* – 5 minutes
  - d. Joint Energy Efficiency Board and Connecticut Green Bank Board Update and Recommendation\* – 10 minutes
6. Commercial and Industrial Sector Program Updates and Recommendations\* – 30 minutes
  - a. C-PACE Transactions\*
    - i. Bridgeport – C-PACE Transaction
    - ii. East Hartford – C-PACE Transaction
    - iii. Meriden – C-PACE Transaction

- iv. Plainville – C-PACE Transaction
  - v. Somers – C-PACE Transaction
  - vi. Windsor – C-PACE Transaction
- b. Amgraph Packaging (Sprague) – C-PACE Transaction\*
- c. Clean Energy Business Solutions Transaction – Cartus\*
- 7. Statutory and Infrastructure Sector Program Updates and Recommendation\* – 15 minutes
  - a. Bridgeport District Heating and Cooling Project\*
- 8. Sector Updates and Progress to Targets – 20 minutes
- 9. Other Business\* – 10 minutes
- 10. Adjourn

\*Denotes item requiring Board action

Join the meeting online at <https://www4.gotomeeting.com/join/775983007>

Dial +1 (805) 309-0012

Access Code: 775-983-007

***Next Regular Meeting: Friday, October 17, 2014 from 9:00-11:00 a.m.  
Colonel Albert Pope Board Room at the  
Clean Energy Finance and Investment Authority, 845 Brook Street, Rocky Hill, CT***



# CLEAN ENERGY

## FINANCE AND INVESTMENT AUTHORITY

### RESOLUTIONS

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

Friday, July 18, 2014  
9:00-11:00 a.m.

Staff Invited: Jessica Bailey, George Bellas, Andy Brydges, Mackey Dykes, Brian Farnen,  
Bryan Garcia, Dale Hedman, Bert Hunter, and Kerry O'Neill

1. Call to order
2. Public Comments – 5 minutes
3. Approval of meeting minutes for June 20, 2014\* – 5 minutes

#### Resolution #1

Motion to approve the minutes of the Board of Directors meeting for June 20, 2014.  
Second. Discussion. Vote.

4. Update from the President – 5 minutes
5. Committee Updates and Recommendations\* – 15 minutes
  - a. Deployment Committee and Audit, Compliance and Governance Committee  
Recommendation\*– 5 minutes

#### Resolution # 2

**WHEREAS**, pursuant to Section 5.3.1 of the Connecticut Green Bank (the “Green Bank”) Bylaws, the Audit, Compliance & Governance (ACG) Committee is charged with the review and approval of, and in its discretion recommendations to the Green Bank Board of Directors (the “Board”) regarding, all governance and administrative matters affecting the Green Bank, including but not limited to matters of corporate governance and corporate governance policies;

**WHEREAS**, on January 18, 2013, the Board authorized the Green Bank staff to evaluate and approve funding requests less than \$300,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Green Bank Comprehensive Plan, approved within Green Bank’s fiscal budget *and in an aggregate amount not to exceed \$500,000* from the date of the

last Deployment Committee meeting (“Staff Approval Policy for Projects Under \$300,000”);

**WHEREAS**, on May 15, 2014 the Green Bank Deployment Committee voted in favor of recommending that the Board adopt a resolution amending the Staff Approval Policy for Projects Under \$300,000 to increase the aggregate amount limit from \$500,000 to \$1,500,000 from the date of the last Deployment Committee meeting; and

**WHEREAS**, on June 4, 2014 the Green Bank Audit, Compliance and Governance Committee voted in favor of recommending that the Board adopt a resolution amending the Staff Approval Policy for Projects Under \$300,000 to increase the aggregate amount limit from \$500,000 to \$1,000,000 from the date of the last Deployment Committee meeting.

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors (“Board”) hereby adopts a resolution amending the Staff Approval Policy for Projects Under \$300,000 to maintain the aggregate amount limit at \$500,000 but to allow the aggregate amount to be reset after the Deployment Committee has been notified that the limit has been reached or is about to be reached and the members of the Deployment Committee are provided five (5) business days to respond with any objections to the aggregate amount being reset.

**RESOLVED**, that if any member of the Deployment Committee has an objection to the aggregate amount being reset to zero, the Green Bank staff will not approve any additional projects until a full report is made at either the next Board or Deployment Committee meeting.

b. Budget and Operations Committee Recommendations\* – 5 minutes

### **Resolution # 3**

**RESOLVED**, the Connecticut Green Bank Board of Directors approves the salary ranges for Director I level positions and above outlined in Attachment A.

c. Audit, Compliance and Governance Committee Recommendations\* – 15 minutes

i. CT Solar Lease Audit – Calendar Year 2013\*– 5 minutes

### **Resolution # 4**

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

**WHEREAS**, the Committee recommended to the Board approval of the CT Solar Lease 2, LLC Financial Statements and the Independent Auditor’s Report of the Connecticut Green Bank for the period of May 28, 2013 (Date of Inception) through December 31, 2013.

**NOW**, therefore be it:

**RESOLVED**, that the Board approves the CT Solar Lease 2, LLC Financial Statements and the Independent Auditor's Report for the period of May 28, 2013 (Date of Inception) through December 31, 2013.

ii. Adjustments to the Bylaws\* – 5 minutes

**Resolution # 5**

**WHEREAS**, pursuant to Section 12-245m(d)(2) of the Connecticut General Statutes, there has been created the Joint Committee of the Energy Conservation Management Board and the Connecticut Green Bank ("Joint Committee");

**WHEREAS**, the Connecticut Green Bank desires to amend its Bylaws to formalize its participation in the Joint Committee; and

**WHEREAS**, the Audit, Compliance, and Governance Committee recommended to the Board approval of the revisions to the Green Bank Bylaws on July 17, 2014.

**NOW**, therefore be it:

**RESOLVED**, that the Board approves the Audit, Compliance, and Governance Committee recommendation for revisions to the Green Bank Bylaws as presented to the Board on July 18, 2014.

iii. Adjustments to the Operating Procedures\* – 5 minutes

**Resolution # 6**

**WHEREAS**, pursuant to Section 15 of the Connecticut Green Bank (the "Green Bank") Operating Procedures, the Audit, Compliance and Governance Committee (the "Committee") shall meet to review and to discuss the matters addressed by these procedures and, if deemed necessary, to make recommendations for amendment of these procedures to the Board of Directors of the Green Bank (the "Board");

**WHEREAS**, the Committee approved publication of revisions to Green Bank's Operating Procedures in the Connecticut Law Journal and a notice of Intent to Amend Operating Procedures was published in the Connecticut Law Journal on July 1, 2014 in accordance with Section 1-121 of the Connecticut General Statutes; and

**WHEREAS**, the Committee recommended to the Board approval of the revised Operating Procedures contingent upon the review of any and all public comments.

**NOW**, therefore be it:

**RESOLVED**, that the Board of Directors of the Green Bank approves the revised Operating Procedures contingent upon receiving no adverse public comment on or before July 31, 2014.

6. Commercial and Industrial Sector Program Updates and Recommendations\* – 30 minutes

a. C-PACE Transactions\*

i. Bridgeport – C-PACE Transaction

**Resolution # 7**

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Green Bank seeks to provide a \$1,811,461 construction and term loan under the C-PACE program to MDL Realty, LLC, the property owner of 380 Horace Street, Bridgeport, CT (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 President of the Green Bank and any other duly authorized officer of the 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 of Directors dated July 11, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from July 18, 2014;

**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 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.

ii. East Hartford – C-PACE Transaction

**Resolution # 8**

**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 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 has approved a \$40,000,000 C-PACE construction and term loan program; and



**WHEREAS**, the Green Bank seeks to provide a \$2,353,541 construction and term loan under the C-PACE program to E. H. 800 Connecticut Boulevard, LLC, the property owner of 800 Connecticut Boulevard, East Hartford, CT (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 President of the Green Bank and any other duly authorized officer of the 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 of Directors dated July 11<sup>th</sup>, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from July 18<sup>th</sup>, 2014;

**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.

iii. Meriden – C-PACE Transaction

### **Resolution # 9**

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, at a meeting held on July 2, 2013, the Deployment Committee approved a \$1,990,000 construction and (potentially) term loan under the C-PACE program to 290 Pratt Street, LLC, the property owner of 290 Pratt Street, Meriden, CT (the "Efficiency Loan"); and

**WHEREAS**, the Green Bank seeks to provide a total of \$2,852,942 construction and (potentially) term loan under the C-PACE program to 290 Pratt Street, LLC, (the "Loan"), to finance the construction of additional specified clean energy measures in addition to the Efficiency Loan in line with the State's Comprehensive Energy Strategy and the Green Bank's Strategic Plan.

**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 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 of Directors dated July 11, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from July 18, 2014;

**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.

iv. Plainville – C-Pace Transaction

**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 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 Connecticut Green Bank Board of Directors has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Connecticut Green Bank seeks to provide a \$1,225,492 loan under the C-PACE program to Gerald Pelletier, the property owner of 72 Northwest Drive Plainville, CT (the "Loan"), to finance the construction of specified clean energy measures in line with the State’s Comprehensive Energy Strategy and the Connecticut Green Bank’s Strategic Plan.

**NOW**, therefore be it:

**RESOLVED**, that the President of the Connecticut Green Bank and any other duly authorized officer 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 of Directors dated July 11, 2014 and as he or she shall deem to be in the interests of the Connecticut Green Bank and the ratepayers no later than 90 days from July 18, 2014;

**RESOLVED**, that before executing the Loan, the President of the Connecticut Green Bank and any other duly authorized officer of the Connecticut 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 Connecticut 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.

v. Somers – C-PACE Transaction

**Resolution # 11**

**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 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 Connecticut Green Bank Board of Directors has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Connecticut Green Bank seeks to provide a \$957,000 construction and term loan under the C-PACE program to Forty Scitico Road, LLC, the property owner of 40 Scitico Road, Somers, CT (the "Loan"), to finance the construction of specified clean energy measures in line with the State's Comprehensive Energy Strategy and the Connecticut Green Bank's Strategic Plan.

**NOW**, therefore be it:

**RESOLVED**, that the President of the Connecticut Green Bank and any other duly authorized officer 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 of Directors dated July 11<sup>th</sup>, 2014, and as he or she shall deem to be in the interests of the Connecticut Green Bank and the ratepayers no later than 90 days from July 18<sup>th</sup>, 2014;

**RESOLVED**, that before executing the Loan, the President of the Connecticut Green Bank and any other duly authorized officer of the Connecticut 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 Connecticut 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.

vi. Windsor – C-PACE Transaction

**Resolution # 12**

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Green Bank seeks to provide a \$636,367 loan under the C-PACE program to Siebar Windsor, LLC, the property owner of 360 Bloomfield Ave., Windsor, CT (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 President of the Green Bank and any other duly authorized officer of the 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 of Directors dated July 11, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from July 18, 2014;

**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 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. Amgraph Packaging (Sprague, CT) – C-PACE Transaction\*

**Resolution # 13**

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Green Bank seeks to provide a \$6,015,892 loan under the C-PACE program to Amgraph Packaging, Inc., the property owner of 90 Versailles Road, Sprague, CT (the "Loan"), to finance the construction of specified clean energy measures in line with the State's Comprehensive Energy Strategy and Green Bank's Strategic Plan, contingent on the final project meeting all statutory and programmatic requirements.

**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 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 of Directors dated July 11, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from July 18, 2014;

**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 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.

c. Clean Energy Business Solutions Transaction – Cartus\*

**Resolution # 14**

**RESOLVED**, that the President of the Connecticut Green Bank (the “Green Bank”) and any other duly authorized officer of the Green Bank is authorized to execute and deliver a Clean Energy Business Solutions (CEBS) financial assistance award of \$1,000,000, to Cartus Corporation; 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 not later than three months from the date of this resolution.

7. Statutory and Infrastructure Sector Program Updates and Recommendation\* – 15 minutes

a. Bridgeport District Heating and Cooling Project\*

**Resolution # 15**

**WHEREAS**, in accordance with Connecticut Green Bank’s mandate to foster the growth, development and commercialization of clean energy sources and related enterprises, and to stimulate demand for clean energy and deployment of clean energy sources that serve end use customers in the State of Connecticut, Connecticut Green Bank has determined that it is in keeping with Conn. Gen. Stat. Section 16-245n for Connecticut Green Bank to fund certain commercial activities that support projects involving the use of distributed generation power production;

**WHEREAS**, NuPower Thermal, LLC, a limited liability company wholly-owned by NuPower, LLC, submitted an application for financial assistance under Connecticut Green Bank's Site-Specific Feasibility Study program for the purpose of verifying the technical and economic feasibility of installing certain clean energy generating equipment;

**WHEREAS**, the Connecticut Green Bank, by staff approval, approved a feasibility loan for the District Energy project in the amount of \$50,000 on February 13, 2013, which was expanded to \$89,000 on October 9, 2013;

**WHEREAS**, NuPower Thermal, LLC has successfully completed a feasibility study into the sizing, needs, sources, and basic design of an energy system to produce hot water and chilled water at a central plant utilizing waste heat for delivery through pipes to individual buildings for space heating, domestic hot water heating and air conditioning (a "District Energy" system);

**WHEREAS**, the Connecticut Green Bank wishes to maintain its support and commitment to the success of the District Energy project and has budgeted in Fiscal Year 2014 for strategic opportunities for purposes such as these that support the Comprehensive Energy Strategy; and

**WHEREAS**, the Connecticut Green Bank staff recommends that the Board approve a strategic development loan in addition to the previously approved feasibility loans in an amount not to exceed \$338,000 to NuPower Thermal, LLC for the development of the downtown Bridgeport District Energy project, given the special capabilities of NuPower, LLC in developing large scale infrastructure projects in the State of Connecticut, the uniqueness of the project itself and its potential to achieve significant private and public leverage, the strategic importance of reducing heating costs and enhancing the operational costs at a large scale in a distressed municipality, and the multi-phase characteristics of the District Energy project.

**NOW**, therefore be it:

**RESOLVED**, that the Connecticut Green Bank Board of Directors approves of the NuPower Thermal, LLC loan for development of the downtown Bridgeport District Heating Loop as a Strategic Selection and Award pursuant to the Connecticut Green Bank Operating Procedures Section XII given the special capabilities of NuPower, LLC in developing large scale infrastructure projects in the State of Connecticut, the uniqueness of the project itself and its potential to achieve significant private and public leverage, the strategic importance of reducing heating costs and enhancing the operational costs at a large scale in a distressed municipality, and the multi-phase characteristics of the District Energy project.

**RESOLVED**, that the President of Connecticut Green Bank and any other duly authorized officer of Connecticut Green Bank is authorized to execute definitive loan documentation based on the terms in this due diligence package for financial support in the form of strategic development loan financing in an amount not to exceed \$338,000.

**RESOLVED**, that the Connecticut Green Bank Board of Directors' approval is conditioned upon the completion of the Green Bank staff's due diligence review, including review and reasonable satisfaction with all project documentation.

8. Sector Updates and Progress to Targets – 20 minutes
9. Other Business\* – 10 minutes
10. Adjourn

\*Denotes item requiring Board action

Join the meeting online at <https://www4.gotomeeting.com/join/775983007>

Dial +1 (805) 309-0012

Access Code: 775-983-007

***Next Regular Meeting: Friday, October 17, 2014 from 9:00-11:00 a.m.  
Colonel Albert Pope Board Room at the  
Clean Energy Finance and Investment Authority, 845 Brook Street, Rocky Hill, CT***



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# **Board of Directors of the Connecticut Green Bank**

**Agenda Item #1**

Call to Order

July 18, 2014





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## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #2**

Public Comments

July 18, 2014



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## **Board of Directors of the Connecticut Green Bank**

### **Agenda Item #3**

Approval of Meeting Minutes of Jun 20, 2014

July 18, 2014



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## **Board of Directors of the Connecticut Green Bank**

### **Agenda Item #4**

Update from the President

July 18, 2014

# Update from the President Comprehensive Plan



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- ▶ Emphasized “accessibility and affordability” throughout
- ▶ Stressed key outcomes of job creation and GHG emission reductions throughout
- ▶ Explained role of CGB with natural gas and heating oil, including energy efficiency
- ▶ Clarified state bond funds and SCRF language – **working with Treasurer’s Office on specific section for collaboration**
- ▶ Clarified role with AFV and infrastructure, including profile on storage
- ▶ Included FY 2015 budget link and estimated E<sup>3</sup> benefits
- ▶ **In “Metrics of Success” section, include a “Green Bank” – growth of assets on the balance sheet, increase in revenues, etc.**
- ▶ Revised vision statement

*To lead the green bank movement by accelerating private investment in clean energy deployment for Connecticut to achieve economic prosperity, create jobs, promote energy security, and address climate change.*

# Update from the President

## HOPBI Fix and RSIP Update



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- ▶ HOPBI fix is in place – projects moving again and working capital loan in place next week
- ▶ Focused on post-30 MW RSIP
  - ▶ Pursue a communication strategy – met the goal more than 7 years ahead of schedule and built \$100 million market
  - ▶ Developing policy portfolio for 2015 session
  - ▶ Meeting with key stakeholders next week to discuss Step 5
  - ▶ Expect a recommendation to the Deployment Committee – 1<sup>st</sup> week of August
  - ▶ Provide recommendation for the Board of Directors – 2<sup>nd</sup> week of August

# Update from the President

## C-PACE in the Press (Greentech Media)



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### In a 'Watershed' Deal, Securitization Comes to Commercial



Securitization, the holy grail  
the commercial sector.

### The Inside Story of How Connecticut Became So Influential in Energy Efficiency Finance



Shutterstock.com

The state's green bank executed a landmark securitization of efficiency loans. Will lessons learned in Connecticut spread?

Nick Lombardi  
July 8, 2014

Back in May, news broke in Connecticut that CEFIA, the state's green bank, had inked a deal with specialty investor Clean Fund to bundle and securitize \$30 million of PACE loans for energy retrofits in commercial buildings.



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## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #5**

Committee Updates and Recommendations

July 18, 2014

# Deployment and ACG Committees

## Revision to Funding Request Policy



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### BACKGROUND

- ▶ January 18, 2013: Board authorized staff to approve program funding requests less than \$300,000 which are:
  - ▶ Pursuant to an established formal approval process requiring the signature of a Green Bank officer,
  - ▶ Consistent with the Green Bank Comprehensive Plan,
  - ▶ Approved within Green Bank's fiscal budget, and
  - ▶ In an aggregate amount not to exceed \$500,000 from the date of the last Deployment Committee meeting.
  
- ▶ Deployment and ACG Committees reviewed potential increase of the \$500,000 aggregate amount



# Deployment and ACG Committees

## Revision to Funding Request Policy



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

### PROPOSED REVISION

- ▶ Keep Aggregate cap but add flexibility into the process
- ▶ Staff would provide a report to the Deployment Committee as soon as the aggregate amount reaches \$500,000 without having to wait for the next Deployment Committee meeting.
  - ▶ Staff would send notice that the aggregate limit has been reached or is about to be reached along with a memorandum describing the specifics of each project funded.
  - ▶ The Committee members would have five (5) business days to respond with any comments or concerns.
  - ▶ If there are no objections by a Director, the aggregate amount would reset to zero.



### ▶ **Background**

- ▶ In the Fall of 2012, CI and CEFIA commissioned a study from Buck Associates to compare CEFIA salaries to private and non-profit/government entities salaries
- ▶ The study evaluated CEFIA's market position including base salary, bonus and benefits

### ▶ **Results**

- ▶ With a few exceptions, weighted base salaries are within an acceptable range of the market median
- ▶ Several senior positions fell short of an acceptable range when compared to the market median for total compensation (base salary + bonus)

# Budget and Operations Committee

## Revision to Salary Ranges (cont'd)



### ► Recommendation

	Corporate Division	Program Division	Investment Division
Grades 1 – 4	●	●	●
Grades 5 - 6	●	●	●
Grades 7 - EX	●	●	●

- Administrative Assistant
- Assistant
- Executive Assistant
- Associate
- Senior Associate
- Assistant Manager
- Associate Manager
- Manager

- Senior Manager
- Assistant Director
- Associate Director
- Director I
- Director II
- Managing Director
- Officer

# Budget and Operations Committee

## Revision to Salary Ranges (cont'd)



### ► Corporate Positions

Job Title	CURRENT RANGES		SURVEY INFORMATION		PROPOSED RANGES		
	Min	Max	Base Midpoint	TCC* Midpoint	Min	Mid	Max
Director I	\$ 102,307	\$ 144,490	\$ 108,000	\$ 122,000	\$ 91,526	\$ 114,408	\$ 137,289
Director II	\$ 118,867	\$ 167,880			\$ 109,832	\$ 126,994	\$ 144,155
Managing Director		New			\$ 137,290	\$ 151,019	\$ 164,748
Chief Legal Officer	\$ 131,635	\$ 184,716	\$ 178,000	\$ 217,000	\$ 130,200	\$ 162,750	\$ 195,300
Vice President		New	\$ 169,000	\$ 190,000	\$ 116,250	\$ 150,000	\$ 183,750
President	\$ 131,635	\$ 184,716	\$ 273,000	\$ 345,000	\$ 172,000	\$ 207,500	\$ 243,000

\*Total cash compensation (base salary + annual bonus)

# Budget and Operations Committee

## Revision to Salary Ranges (cont'd)



### ► Program Positions

Job Title	CURRENT RANGES		SURVEY INFORMATION		PROPOSED RANGES		
	Min	Max	Base Midpoint	TCC Midpoint	Min	Mid	Max
Director I	\$ 102,307	\$ 144,490	\$ 125,000	\$ 135,000	\$ 99,962	\$ 124,697	\$ 149,431
Director II	\$ 118,867	\$ 167,880	\$ 125,000	\$ 135,000	\$ 120,000	\$ 138,750	\$ 157,500
Managing Director					\$ 150,000	\$ 165,000	\$ 180,000
Vice President Officer		New	\$ 169,000	\$ 190,000	\$ 116,250	\$ 150,000	\$ 183,750
					\$ 130,200	\$ 162,750	\$ 195,300

# Budget and Operations Committee

## Revision to Salary Ranges (cont'd)



### ► Investment Positions

Job Title	CURRENT RANGES		SURVEY INFORMATION		PROPOSED RANGES		
	Min	Max	Base Midpoint	TCC Midpoint	Min	Mid	Max
Director I	\$ 102,307	\$ 144,490			\$ 106,104	\$ 132,630	\$ 159,156
Director II	\$ 118,867	\$ 167,880			\$ 132,632	\$ 153,356	\$ 174,080
Managing Director		New			\$ 165,790	\$ 182,369	\$ 198,948
Vice President/Chief Investment Officer	\$ 131,666	\$ 184,716	\$ 186,000	\$ 288,000	\$ 145,824	\$ 182,187	\$ 218,550

# ACG Committee

## CT Solar Lease Audit



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ Pursuant to the CT Solar Lease 2 Operating Agreement, CEFIA Solar Services Inc. (Managing Member) is responsible for arranging annual audit of the books of the Company.
- ▶ George Bellas has worked with CohnReznick (SL2's Accountants) to organize and complete the audit which covers the initial period of operations: May 28, 2013 (the Date of Inception) through the end of its first fiscal year, which was December 31, 2013.
- ▶ The report has been finalized and presented to the Audit, Compliance, and Governance Committee by Mr. Bellas and CohnReznick.
- ▶ The auditors are pleased with the processes and systems in place and complimented the Green Bank on having strong finance and accounting teams in place to manage the program.

# ACG Committee

## CT Solar Lease Audit



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ Unmodified Opinion on the Financial Statements
- ▶ Audit conducted in accordance with auditing standards generally accepted in the United States of America (GAAP)
- ▶ ACG Committee recommends to the Board approval of the CT Solar Lease 2, LLC Financial Statements and Independent Auditor's Report for the period of May 28, 2013 (Date of Inception) through December 31, 2013.



# ACG Committee

## Revisions to Bylaws



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

### BACKGROUND

- ▶ Name Change
  
- ▶ Joint Committee
  - ▶ Pursuant to 16-245m(d)(2) there exists a Joint Committee of the Energy Conservation Management Board and the Board of Directors of the Green Bank.
  - ▶ Green Bank desires to revise its bylaws in order to formalize its participation on the Joint Committee.
  - ▶ ACG Committee recommends to the Board approval of the revisions to the Green Bank Bylaws



### JOINT COMMITTEE BYLAW REVISION

Chairperson will appoint at least two voting Directors and nonvoting members to serve as members of the Joint Committee, and who will:

- ▶ work with the Joint Committee to examine opportunities to coordinate as required by the General Statutes;
- ▶ work with the Joint Committee to reduce the long-term cost, environmental impacts and security risks of energy in the state; and
- ▶ report to the Board on the Joint Committee's actions and activities.

# ACG Committee

## Revisions to Operating Procedures



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

### BACKGROUND

- ▶ Amendments clarify the authority of the President in regard to employee policies (e.g., telecommuting, flex-time, etc.)
- ▶ Clarifies the RFP approval process related to competitive and programmatic selection and award procedures
- ▶ Name Change
- ▶ Notice filed in Connecticut Law Journal on July 1, 2014
  - ▶ Section 1-121 of the Connecticut General Statutes requires 30 days for public comment
- ▶ **ACG Committee recommends to the Board approval of the revised Operating Procedures contingent upon receiving no adverse public comment on or before July 31, 2014**

# Joint CEEF-CGB Committee

## Request and Response



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ Quarterly meetings
- ▶ EEB request for assistance (April 23, 2014)
  - ▶ C&I Market Gaps – between SBEA and C-PACE
  - ▶ SBEA Cost of Capital – UI only
  - ▶ C-PACE – optimize incentives
  - ▶ Single Family – continue coordination
  - ▶ Multifamily – continue coordination
- ▶ Response to EEB request for assistance – BOD Member (Norma Glover) and non-voting BOD Member (Bryan Garcia) on behalf of the BOD.



**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6**

Commercial and Industrial Sector Programs

July 18, 2014

# C-PACE – Where Are We?

## Deal Update



### ▶ Closed

- ▶ 26 Deals
- ▶ \$19.5M in financing

### ▶ Approved

- ▶ 17 Deals\*
- ▶ \$23M in financing\*

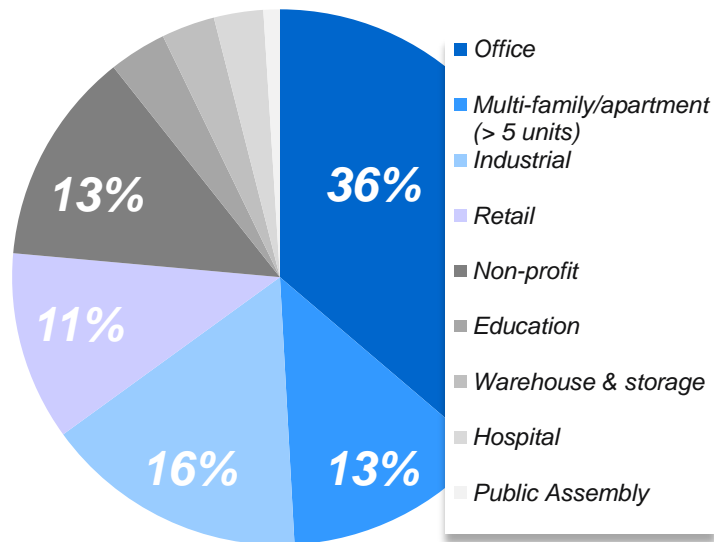
\*Includes 7/18 BOD transactions

▶ Fuel Savings: 325,000,000 MMBtu or ~40% on avg

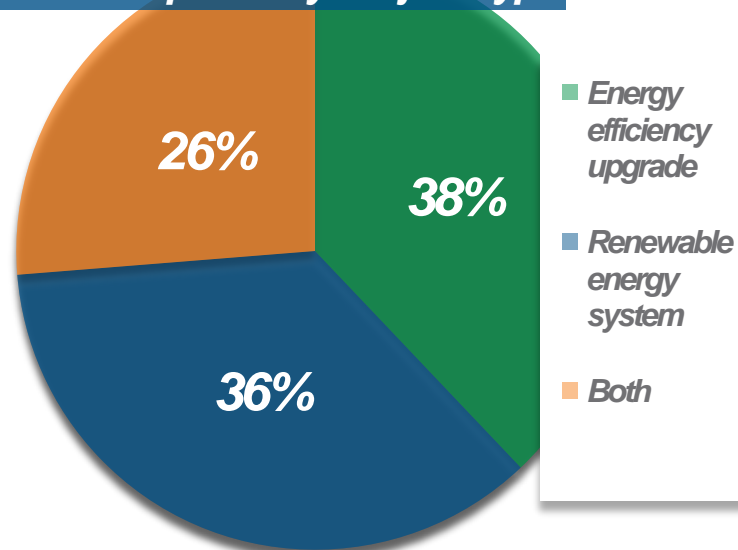
▶ Electric Savings: 210,000 MWh or >50% on avg

▶ Clean Energy Deployed: Over 6.8 MW

### C-PACE Pipeline by Building Type



### C-PACE Pipeline by Project Type





**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6ai**

Commercial and Industrial Sector Programs

Bridgeport – C-PACE Transaction

July 18, 2014

# 380 Horace Street (Bridgeport) Ratepayer Payback



- ▶ **\$1,811,461** to install 600 kW solar PV system, LED lighting upgrades, wood gasifier, and biodiesel backup generator
- ▶ Projected savings are **16,888 MWh** versus **\$1,811,461** of ratepayer funds at risk.
- ▶ 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 Bridgeport as it collects the C-PACE benefit assessment from the property owner.

**REDACTED**



# 380 Horace Street (Bridgeport)

## Terms and Conditions



- ▶ **\$1,811,461** construction loan at 5% and term loan set at a fixed 6% over the 20-year term
- ▶ **\$1,811,461** loan against the property
  - ▶ Property valued at **REDACTED**
  - ▶ Loan-to-value ratio equals **REDACTED** (lien-to-value equals **REDACTED**).
- ▶ DSCR > **REDACTED**



**REDACTED**

# Anticipated Green Bank cash flow



CEFIA Pro Forma			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<u>Date</u>	<u>CEFIA \$</u>
Amount Financed	\$1,811,464	Jul 2014	\$1,811,464
Construction Period (years)	0.25	Sep 2014	\$22,643
Term (years)	20	Jan 2015	\$157,794
Construction Financing Rate	5.00%	Jan 2016	\$157,794
Term Financing Rate	6.08%	Jan 2017	\$157,794
		Jan 2018	\$157,794
Construction Interest Payment (bullet)	\$22,643	Jan 2019	\$157,794
Yearly Debt Service Payments (made semi-annually)	\$157,794	Jan 2020	\$157,794
		Jan 2021	\$157,794
		Jan 2022	\$157,794
		Jan 2023	\$157,794
		Jan 2024	\$157,794
		Jan 2025	\$157,794
		Jan 2026	\$157,794
		Jan 2027	\$157,794
		Jan 2028	\$157,794
		Jan 2029	\$157,794
		Jan 2030	\$157,794
		Jan 2031	\$157,794
		Jan 2032	\$157,794
		Jan 2033	\$157,794
		Jan 2034	\$157,794



**REDACTED**

# 380 Horace Street (Bridgeport)

## The Five W's



- ▶ **What?** Receive approval for a **\$1,811,461** construction and (potentially) term loan under the C-PACE program to MDL Realty, LLC to finance the construction of specified energy upgrade
- ▶ **When?** Project to commence 2014
- ▶ **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?** MDL Realty, LLC, the property owner of 380 Horace St, Bridgeport, CT
- ▶ **Where?** 380 Horace St, Bridgeport, CT



**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6aii**

Commercial and Industrial Sector Programs

East Hartford – C-PACE Transaction

July 18, 2014

# 800 CT Boulevard (East Hartford) Ratepayer Payback



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ **\$2,353,541** to install 446 kW solar PV system, lighting, HVAC, and building mgmt system upgrades
- ▶ Projected savings are **62,619 MMBtu** versus **\$2,353,541** of ratepayer funds at risk.
- ▶ 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 East Hartford as it collects the C-PACE benefit assessment from the property owner.

**REDACTED**

# 800 CT Boulevard (East Hartford)

## Terms and Conditions



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ **\$2,353,541** construction loan at 5% and term loan set at a fixed 6% over the 20-year term
- ▶ **\$2,353,541** loan against the property
  - ▶ Property valued at **REDACTED**
  - ▶ Loan-to-value ratio equals **REDACTED** (lien-to-value equals **REDACTED**).
- ▶ DSCR > **REDACTED**





**REDACTED**

# Anticipated Green Bank cash flow



CT Green Bank Pro Forma			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<u>Date</u>	<u>GB \$</u>
Amount Financed	\$2,353,541	Jul 2014	\$2,353,541
Construction Period (years)	0.42	Dec 2014	\$49,713
Term (years)	20	Jan 2015	\$205,013
Construction Financing Rate	5.07%	Jan 2016	\$205,013
Term Financing Rate	6.08%	Jan 2017	\$205,013
		Jan 2018	\$205,013
Construction Interest Payment (bullet)	\$49,713	Jan 2019	\$205,013
Yearly Debt Service Payments (made semi-annually)	\$205,013	Jan 2020	\$205,013
		Jan 2021	\$205,013
		Jan 2022	\$205,013
		Jan 2023	\$205,013
		Jan 2024	\$205,013
		Jan 2025	\$205,013
		Jan 2026	\$205,013
		Jan 2027	\$205,013
		Jan 2028	\$205,013
		Jan 2029	\$205,013
		Jan 2030	\$205,013
		Jan 2031	\$205,013
		Jan 2032	\$205,013
		Jan 2033	\$205,013
		Jan 2034	\$205,013



**REDACTED**

# 800 CT Boulevard (East Hartford)

## The Five W's



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ **What?** Receive approval for a **\$2,353,541** construction and (potentially) term loan under the C-PACE program to E.H. 800 Connecticut Boulevard, LLC to finance the construction of specified energy upgrade
- ▶ **When?** Project to commence 2014
- ▶ **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?** E.H. 800 Connecticut Boulevard, LLC, the property owner of 800 Connecticut Boulevard, East Hartford, CT
- ▶ **Where?** 800 Connecticut Boulevard, East Hartford, CT



**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6aiii**

Commercial and Industrial Sector Programs

Meriden – C-PACE Transaction

July 18, 2014

# 290 Pratt – Phase I (Meriden) Ratepayer Payback



- ▶ In July 2013, Deployment Committee approved **290 Pratt – Phase I**
- ▶ **\$1,990,000** to install HVAC replacement, window replacement, building mgmt system upgrade
- ▶ Projected savings were **142,460 MMBTU** versus **\$1,990,000** of ratepayer funds at risk.
- ▶ 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 Meriden as it collects the C-PACE benefit assessment from the property owner.

**REDACTED**

# 290 Pratt – Phase II (Meriden) Ratepayer Payback



- ▶ **\$2,852,942 Total Assessment**

- ▶ **\$1,925,847** for efficiency improvements (Phase I) – **REDACTED**

- ▶ **\$927,095** to install 215kW solar PV system, asbestos remediation, and roof repair (Phase II)

**REDACTED**

- ▶ Total projected savings are **155,580 MMBtu** versus **\$2,852,942** of ratepayer funds at risk.

- ▶ 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 Meriden as it collects the C-PACE benefit assessment from the property owner.

# 290 Pratt – Phase I and II (Meriden)

## Terms and Conditions



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

### ▶ Phase I

- ▶ **\$1,925,847** construction loan at 5% and term loan set at fixed 5.5% over the 20-year term
- ▶ Property valued at **REDACTED**
- ▶ Loan-to-value ratio equals **REDACTED**
- ▶ DSCR > **REDACTED**

### ▶ Phase II

- ▶ **\$927,095** construction loan at 5% and term loan set at fixed 6% over the 20-year term
- ▶ Property valued at **REDACTED**
- ▶ Loan-to-value ratio equals **REDACTED**
- ▶ DSCR > **REDACTED**





**REDACTED**



**REDACTED**

# Anticipated Green Bank cash flow



<b>CEFIA Pro Forma - Total (Combined)</b>			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<u>Date</u>	<u>CEFIA \$</u>
Amount Financed	#####	Aug 2013	<b>\$1,925,847</b>
Construction Period (years)	1	Feb 2014	\$48,146
Term (years)	20	Aug 2014	<b>\$927,095</b>
Construction Financing Rate	5.00%	Jan 2015	\$431,004
Term Financing Rate	6.00%	Jan 2016	\$407,827
		Jan 2017	\$407,827
		Jan 2018	\$407,827
Construction Interest Payment (bullet)	\$142,647	Jan 2019	\$407,827
Yearly Debt Service Payments (made semi-annually)	\$246,850	Jan 2020	\$407,827
		Jan 2021	\$407,827
		Jan 2022	\$407,827
		Jan 2023	\$407,827
		Jan 2024	\$407,827
		Jan 2025	\$407,827
		Jan 2026	\$407,827
		Jan 2027	\$407,827
		Jan 2028	\$407,827
		Jan 2029	\$407,827
		Jan 2030	\$407,827
		Jan 2031	\$407,827
		Jan 2032	\$407,827
		Jan 2033	\$407,827
		Jan 2034	\$407,827

<b>CEFIA Pro Forma</b>			
<b>Efficiency + Asbestos</b>			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<b>Date</b>	<b>CEFIA \$</b>
Amount Financed	\$1,925,847	Aug 2013	<b>\$1,925,847</b>
Construction Period (years)	0.5	Feb 2014	\$48,146
Term (years)	20	Jan 2015	\$160,976
Construction Financing Rate	5.00%	Jan 2016	\$160,976
Term Financing Rate	5.58%	Jan 2017	\$160,976
		Jan 2018	\$160,976
Construction Interest Payment (bullet)	\$48,146	Jan 2019	\$160,976
Yearly Debt Service Payments (made semi-annually)	\$160,976	Jan 2020	\$160,976
		Jan 2021	\$160,976
		Jan 2022	\$160,976
		Jan 2023	\$160,976
		Jan 2024	\$160,976
		Jan 2025	\$160,976
		Jan 2026	\$160,976
		Jan 2027	\$160,976
		Jan 2028	\$160,976
		Jan 2029	\$160,976
		Jan 2030	\$160,976
		Jan 2031	\$160,976
		Jan 2032	\$160,976
		Jan 2033	\$160,976
		Jan 2034	\$160,976

<b>CEFIA Pro Forma</b>			
<b>PV</b>			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<b>Date</b>	<b>CEFIA \$</b>
Amount Financed	\$927,095	Aug 2014	<b>\$927,095</b>
Construction Period (years)	0.5	Jan 2015	\$23,177
Term (years)	20	Jan 2015	\$246,850
Construction Financing Rate	5.00%	Jan 2016	\$246,850
Term Financing Rate	6.08%	Jan 2017	\$246,850
		Jan 2018	\$246,850
Construction Interest Payment (bullet)	\$23,177	Jan 2019	\$246,850
Yearly Debt Service Payments (made semi-annually)	\$80,758	Jan 2020	\$246,850
		Jan 2021	\$246,850
		Jan 2022	\$246,850
		Jan 2023	\$246,850
		Jan 2024	\$246,850
		Jan 2025	\$246,850
		Jan 2026	\$246,850
		Jan 2027	\$246,850
		Jan 2028	\$246,850
		Jan 2029	\$246,850
		Jan 2030	\$246,850
		Jan 2031	\$246,850
		Jan 2032	\$246,850
		Jan 2033	\$246,850
		Jan 2034	\$246,850

# 290 Pratt – Phase I and II (Meriden)

## The Five W's



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ **What?** Receive approval for a **\$927,095** construction and (potentially) term loan under the C-PACE program to 290 Pratt St, LLC (Flatiron Real Estate Advisors, LLC) to finance the construction of specified energy upgrade
- ▶ **When?** **Phase I** commenced in 2013 and **Phase II** to commence 2014
- ▶ **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?** 290 Pratt St, LLC (Flatiron Real Estate Advisors, LLC), the property owner of 290 Pratt St, Meriden, CT
- ▶ **Where?** 290 Pratt St, Meriden, CT



**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6aiv**

Commercial and Industrial Sector Programs

Plainville – C-PACE Transaction

July 18, 2014

# Modern Woodcrafts (Plainville)

## Ratepayer Payback



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ **\$1,225,492** to install 324 kW solar PV system, LED lighting, HVAC mgmt system
- ▶ Projected savings are **31,419 MMBtu** versus **\$1,225,492** of ratepayer funds at risk.
- ▶ 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 Town of Plainville as it collects the C-PACE benefit assessment from the property owner.

**REDACTED**

# Modern Woodcrafts (Plainville)

## Terms and Conditions



CLEAN ENERGY  
FINANCE AND INVESTMENT AUTHORITY

- ▶ **\$1,225,492** construction loan at 5% and term loan set at a fixed 5.9% over the 19-year term
- ▶ **\$1,225,492** loan against the property
  - ▶ Property valued at **REDACTED**
  - ▶ Loan-to-value ratio equals **REDACTED**
- ▶ DSCR > **REDACTED**





**REDACTED**

<b>Current Status</b>	Pending Board of Directors approval
<b>Energy Contractors</b>	Earthlight Technologies
<b>Additional Comments</b>	(1) Total cost is \$1,325,492, with \$100,000 two-year, interest-free loan from the SBEA program administered by CL&P (2) 3.90x up to year 2, 5.42x for the remaining life of the loan (3) Based on \$1,901,410 town tax assessor (2011). The C-PACE assessment will be subject to an as-complete appraisal

# Anticipated Green Bank cash flow



Green Bank Pro Forma			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<u>Date</u>	<u>CEFIA \$</u>
Amount Financed	\$1,225,492	Jul 2014	\$1,225,492
Construction Period (years)	0.50	Dec 2014	\$30,637
Term (years)	19	Jan 2015	\$108,816
Construction Financing Rate	5.00%	Jan 2016	\$108,816
Term Financing Rate	5.98%	Jan 2017	\$108,816
		Jan 2018	\$108,816
Construction Interest Payment (bullet)	\$30,637	Jan 2019	\$108,816
Yearly Debt Service Payments (made semi-annually)	\$108,816	Jan 2020	\$108,816
		Jan 2021	\$108,816
		Jan 2022	\$108,816
		Jan 2023	\$108,816
		Jan 2024	\$108,816
		Jan 2025	\$108,816
		Jan 2026	\$108,816
		Jan 2027	\$108,816
		Jan 2028	\$108,816
		Jan 2029	\$108,816
		Jan 2030	\$108,816
		Jan 2031	\$108,816
		Jan 2032	\$108,816
		Jan 2033	\$108,816



**REDACTED**

# Modern Woodcrafts (Plainville)

## The Five W's



- ▶ **What?** Receive approval for a **\$1,225,492** construction and (potentially) term loan under the C-PACE program to Gerald Pelletier to finance the construction of specified energy upgrade
- ▶ **When?** Project to commence 2014
- ▶ **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?** Gerald Pelletier, the property owner of 72 Northwest Drive, Plainville, CT
- ▶ **Where?** 72 Northwest Drive, Plainville, CT



**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6av**

Commercial and Industrial Sector Programs

Somers – C-PACE Transaction

July 18, 2014

# 40 Scitico Rd (Somers)

## Ratepayer Payback



- ▶ **\$957,000** to install 250 kW solar PV installation
- ▶ Projected savings are **5,332 MWh** versus **\$957,000** of ratepayer funds at risk.
- ▶ 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 Town of Somers as it collects the C-PACE benefit assessment from the property owner.

**REDACTED**

# 40 Scitico Rd (Somers)

## Terms and Conditions



- ▶ **\$957,000** construction loan at 5% and term loan set at a fixed 5.5% over the 20-year term
- ▶ **\$957,000** loan against the property
  - ▶ Property valued at **REDACTED**
  - ▶ Loan-to-value ratio equals **REDACTED** (lien-to-value equals **REDACTED**)
- ▶ DSCR > **REDACTED**



**REDACTED**



# Anticipated Green Bank cash flow



<b>CT Green Bank Pro Forma</b>			
<i>Project Basics</i>		<i>Cash Flows</i>	
Amount Financed	\$957,000	<u>Date</u>	<u>CEFIA \$</u>
Construction Period (years)	0.42	Jul 2014	\$957,000
Term (years)	20	Dec 2014	\$19,938
		Jan 2015	\$79,491
Construction Financing Rate	5.00%	Jan 2016	\$79,491
Term Financing Rate	5.50%	Jan 2017	\$79,491
		Jan 2018	\$79,491
Construction Interest Payment (bullet)	\$19,938	Jan 2019	\$79,491
Yearly Debt Service Payments (made semi-annually)	\$79,491	Jan 2020	\$79,491
		Jan 2021	\$79,491
		Jan 2022	\$79,491
		Jan 2023	\$79,491
		Jan 2024	\$79,491
		Jan 2025	\$79,491
		Jan 2026	\$79,491
		Jan 2027	\$79,491
		Jan 2028	\$79,491
		Jan 2029	\$79,491
		Jan 2030	\$79,491
		Jan 2031	\$79,491
		Jan 2032	\$79,491
		Jan 2033	\$79,491
		Jan 2034	\$79,491



**REDACTED**

# 40 Scitico Rd (Somers)

## The Five W's



- ▶ **What?** Receive approval for a **\$957,000** construction and (potentially) term loan under the C-PACE program to Forty Scitico Road LLC to finance the construction of specified energy upgrade
- ▶ **When?** Project to commence 2014
- ▶ **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?** Forty Scitico Road LLC, the property owner of 40 Scitico Rd, Somers, CT
- ▶ **Where?** 40 Scitico Rd, Somers, CT



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## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #6av**

Commercial and Industrial Sector Programs

Windsor – C-PACE Transaction

July 18, 2014

# 360 Bloomfield Ave (Windsor)

## Ratepayer Payback



- ▶ **\$636,367** to install lighting, HVAC, variable frequency drives, building mgmt systems
- ▶ Projected savings are **33,122 MMBtu** versus **\$636,367** of ratepayer funds at risk.
- ▶ 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 New Britain as it collects the C-PACE benefit assessment from the property owner.

**REDACTED**

# 360 Bloomfield Ave (Windsor)

## Terms and Conditions



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- ▶ **\$636,367** construction at 5% and term loan set at a fixed 5.4% over the 14-year term
- ▶ **\$636,367** loan against the property
  - ▶ Property valued at **REDACTED**
  - ▶ Loan-to-value ratio equals **REDACTED** (lien-to-value equals **REDACTED**)
    - ▶ Based upon current amortization schedule, will be <80% at construction commencement
- ▶ DSCR > **REDACTED**



**REDACTED**

# Anticipated Green Bank cash flow



Green Bank Pro Forma			
<i>Project Basics</i>		<i>Cash Flows</i>	
		<u>Date</u>	<u>CEFIA \$</u>
Amount Financed	\$636,367	Jul 2014	<b>\$636,367</b>
Construction Period (years)	0.25	Sep 2014	\$7,955
Term (years)	14	Jan 2015	\$66,255
		Jan 2016	\$66,255
Construction Financing Rate	5.00%	Jan 2017	\$66,255
Term Financing Rate	5.48%	Jan 2018	\$66,255
		Jan 2019	\$66,255
Construction Interest Payment (bullet)	\$7,955	Jan 2020	\$66,255
Yearly Debt Service Payments (made semi-annually)	\$66,255	Jan 2021	\$66,255
		Jan 2022	\$66,255
		Jan 2023	\$66,255
		Jan 2024	\$66,255
		Jan 2025	\$66,255
		Jan 2026	\$66,255
		Jan 2027	\$66,255
		Jan 2028	\$66,255





**REDACTED**

# 360 Bloomfield Ave (Windsor)

## The Five W's



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- ▶ **What?** Receive approval for a **\$636,367** construction and (potentially) term loan under the C-PACE program to Siebar Windsor, LLC to finance the construction of specified energy upgrade
- ▶ **When?** Project to commence 2014
- ▶ **Why?** Allow CEFIA to finance this C-PACE transaction, continue to build momentum in the market, and potentially provide term financing for this project until CEFIA sells it along with its other loan positions in C-PACE transactions.
- ▶ **Who?** Siebar Windsor, LLC, the property owner of 360 Bloomfield Ave, Windsor, CT
- ▶ **Where?** 360 Bloomfield Ave, Windsor, CT



**CLEAN ENERGY**  
FINANCE AND INVESTMENT AUTHORITY

## **Board of Directors of the Connecticut Green Bank**

### **Agenda Item #6b**

Commercial and Industrial Sector Programs

Sprague – C-PACE Transaction

July 18, 2014

# Amgraph Packaging (Sprague)



- ▶ Amgraph manufactures flexible packaging for a large variety of industries (food, beauty, pharma, etc)
  - ▶ Headquartered in Sprague since 1984
  - ▶ Employs 140+
- ▶ Amgraph had planned an 800kW fuel cell installation awarded to ClearEdge which was pulled from the Green Bank's April board meeting upon news of ClearEdge's bankruptcy
- ▶ Amgraph is in discussions with Bloom and Fuel Cell Energy to source another fuel cell supplier for the site

**REDACTED**

# Amgraph Packaging (Sprague) Ratepayer Payback



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- ▶ ~\$6M 800kw fuel cell project at Amgraph Packaging originally designed by ClearEdge, projected savings est. **243,880 MMBtu**
- ▶ ZREC with Connecticut manufacturer adder of 10% at \$75/MWh
- ▶ Construction and term loan both set at a fixed 5% over the 10-year term, envisioned to avoid significant restacking risk
- ▶ The Green Bank would sell at least 50% of this loan to Clean Fund or another capital provider
- ▶ **Property valued at REDACTED** before CPACE improvement
  - ▶ **REDACTED**
    - ▶ An appraisal incorporating the fuel cell will be completed before closing
    - ▶ CEFIA will place a UCC lien on all project assets (Fuel Cells, LREC, etc)
- ▶ DSCR **REDACTED**

# Amgraph Packaging (Sprague)

## The Five W's



- ▶ **What?** Update the Green Bank's Board on the Amgraph packaging project, there will be a special board meeting called when Amgraph has selected a supplier and finalized pricing
- ▶ **When?** Project expected to commence late 2014
- ▶ **Why?** Allow the Green Bank to ultimately finance this C-PACE transaction (once pricing is complete), continue to build momentum in the market (this would be the first fuel cell / CPACE project), and potentially provide term financing for this project until the Green Bank sells it along with its other loan positions in C-PACE transactions
- ▶ **Who?** The current owner of the property – Amgraph Packaging– as well as any future property owners upon transfer of title
- ▶ **Where?** 90 Versailles Road, Sprague, CT



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## **Board of Directors of the Connecticut Green Bank**

### **Agenda Item #6c**

Commercial and Industrial Sector Programs

Cartus – Clean Energy Business Solutions

July 18, 2014

# Clean Energy Business Solutions

## Cartus



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- ▶ Headquartered in Danbury, Cartus is the global leader in global mobility and workforce development



- ▶ DECD has requested \$1m of CEBS funding as part of a retention package that will keep Cartus in CT, retaining 1,275 jobs and creating 200 more over 5 years.
- ▶ Funding will be used in energy efficiency improvements as part of an overall renovation of their headquarters





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## **Board of Directors of the Connecticut Green Bank**

### **Agenda Item #7**

Statutory and Infrastructure Sector Programs

Bridgeport District Heating and Cooling Project

July 18, 2014

# District Heating Loop

## Project Description



- ▶ **Connecticut's Comprehensive Energy Strategy** calls for more effective utilization of waste-to-energy facilities
- ▶ The District Heating Loop has a two-phased development, using proven hot water heating loop utilizing waste heat from the Wheelabrator plant:
  - ▶ Phase I would utilize roughly 2,600,000MMBtu of waste heat in Phase I to serve 3.05 MSF of C&I and MUSH space in downtown Bridgeport
- ▶ The technology requires smaller pipes, less digging and therefore less costly construction, with cooling option
- ▶ In 2012, CEFIA lent the project \$ [REDACTED] through a legacy CCEF "On Site Distributed Generation" feasibility loan program
- ▶ Current proposed investment of \$ [REDACTED] (loan) would leverage 2:1x in private capital for development phase, and enable a ~\$ [REDACTED] infrastructure project in a distressed community

# District Heating Loop Development timeline

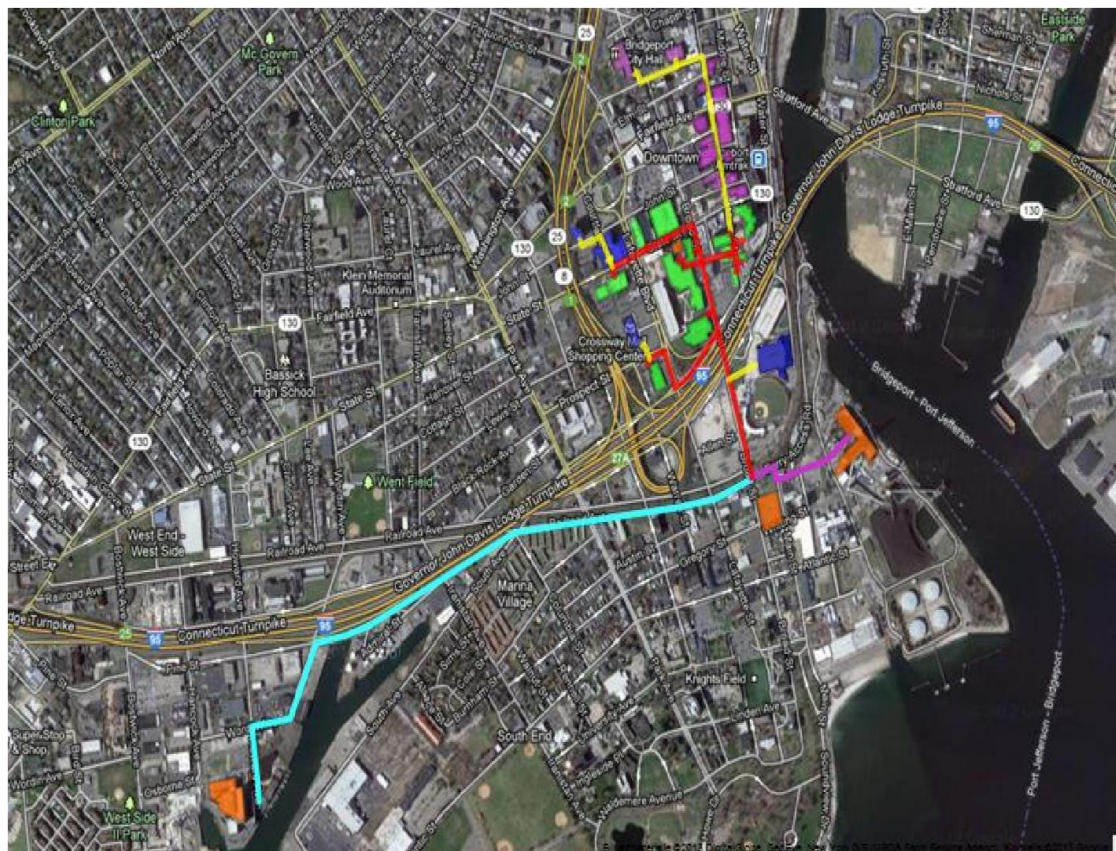


- ▶ **Ongoing**: Stakeholder discussions with potential customers, including: Peoples United Bank, City of Bridgeport, University of Bridgeport, Housatonic Community College, United Illuminating (for offtake of fuel cell installation waste heat) and Webster Bank Arena
- ▶ **July 2014**: [REDACTED]
- ▶ **July 2014**: [REDACTED]
- ▶ **Summer 2014**: conversations with [REDACTED]
- ▶ **Spring 2014**: conducted study and preliminary modeling showing [REDACTED]
- ▶ **Winter 2014**: NuPower LLC's statutory recognition as a regulated Thermal Utility, the "Bridgeport Thermal Limited Liability Company" in 2014 (SB 357)
- ▶ **2013**: MOUs executed with Wheelabrator for sourcing waste heat; Veolia for engineering and design consulting of the heat exchanger during the feasibility study; and University of Bridgeport, which represents 1/3 of the potential customer load for Phase I of development
- ▶ **Winter 2013**: Legislative "fix" to allow District Heating and Cooling charges to be assessed via C-PACE

# District Heating Loop Proposed Build Out



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- **Phase 1: Green buildings - red pipelines**
- **Phase 2: Purple and blue buildings – yellow pipelines**

# District Heating Loop

## Use of CEFIA Financing (CONFIDENTIAL)



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- ▶ The Green Bank's \$338,000 strategic development loan will be leveraged 2:1 and used for customer acquisition, engineering and final development steps before construction commences

[REDACTED TABLE]

# District Heating Loop

## Capital Flow Diagram (CONFIDENTIAL)



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- ▶ **Capital Flow Diagram**

- ▶ [REDACTED DIAGRAM]

# District Heating Loop

## Key Questions



- ▶ **What is the worst case that can happen?** Assuming our rights are adequately protected in loan documents to be executed, our ultimate loss exposure is repayment of outstanding principal and interest for the current proposed loan and our initial feasibility loan (\$██████████ total), in the event that the project does not move forward
- ▶ **What is the financial impact?** The activities the loan is funding will increase the attractiveness of the infrastructure project. Total investment in infrastructure in downtown Bridgeport for Phases I and II of the project is estimated at \$██████████
- ▶ **How can CEFIA be made whole?** In the event the project moves to construction and term financing, CEFIA will be repaid for both loans
- ▶ **What is the project objective function?** 7.78 MMBtu per dollar of ratepayer funds at risk for Phase I and 11.7MMBtu additional MMBtu per dollar of ratepayer funds at risk for Phase II
- ▶ **What is percent of capital allocation to the project to the annual budget?** <██████████%

# District Heating Loop

## Key Questions



- ▶ **Strategic Plan** – is the program consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?
- ▶ This project qualifies as a “Strategic Opportunity”, as defined in CEFIA’s Operating Procedures Section XII:
  - ▶ Special Capabilities: NuPower LLC is uniquely positioned to develop the District Energy system, as they have proven their ability to develop large-scale infrastructure projects with the 37.5 MW Plainfield biomass facility, which was a six-year, 12-agency process. Since approving the feasibility loan in January, NuPower has achieved significant development milestones, detailed above.
  - ▶ Uniqueness: the proposed District Energy will result in ██████% immediate operational savings for businesses and municipal facilities in a distressed community, and serve as an attractive option for new and current businesses.
  - ▶ Strategic Importance: The Bridgeport project is of great importance to the Green Bank because it has strategic tie-ins to C-PACE and Lead by Example projects, two of the Green Bank’s largest programs.
  - ▶ Urgency and Timelines: District Energy systems are large-scale infrastructure projects that have long development cycles.
  - ▶ Multiphase Project: Customer acquisition is the critical juncture of the District Energy project. Once a critical mass of customers has signed agreements, the project will be able to gain construction and term financing. Additionally, Phase I of the project creates optionality for other properties close to the heating loop to benefit from the operational savings.



# District Heating Loop

## Key Questions



- ▶ **Ratepayer Payback** – How much clean energy is being produced from the program versus the dollars of ratepayer funds at risk?

The project will save roughly 7.78 MMBtu per ratepayer dollar at risk for Phase I and 11.7 additional MMBtu per ratepayer dollar at risk for Phase II.

- ▶ **Terms and Conditions** – What are the terms and conditions of the ratepayer payback, if any?

The \$[REDACTED] loan plus the previously approved and funded \$[REDACTED] feasibility loan (\$[REDACTED] total) will be repaid not later than the conversion of the project financing to term financing. The feasibility loan has an interest rate of 0%, while the development loan carries an interest of 5%.

# District Heating Loop

## Key Questions



- ▶ **Risk** – What is the maximum risk exposure of ratepayer funds for the program?

The maximum exposure is \$ [REDACTED], the sum of the \$ [REDACTED] feasibility loan made in 2013, and the proposed strategic development loan of \$ [REDACTED]. There are two major risks detailed in the memo:

- ▶ Customer acquisition: mitigated through (a) extensive design and modeling, which ensures the value proposition to end users ([REDACTED]); (b) [REDACTED], (c) the potential use of creative financing tools, such as C-PACE, which enables the thermal obligation to stay with the property in the event of a transfer of ownership and (d) MOUs signed with City of Bridgeport and UB are significant "anchor customers"
- ▶ Construction risk: mitigated through (a) [REDACTED]; (b) structuring of the construction contract; (c) the design itself, which calls for far less trenching and far smaller piping than steam district heating systems and (d) [REDACTED] give confidence in a successful outcome.

# District Heating Loop

## Key Questions



- ▶ **Capital Expended** – How much of the ratepayer and other capital that CEFIA manages is being expended on the program?

Total capital expended would be \$██████████, inclusive of the amount previously approved and funded. Total new capital expended would be \$██████████, or roughly ██████████% of the Green Bank's unrestricted cash balance of approximately \$72M.

- ▶ **Target Market** – Who are the end-users of the program?

The target market will be the current and future occupants and users of the targeted 5.44 million square feet of commercial and MUSH space in downtown Bridgeport

- ▶ **Financial Statements** – How is the program investment accounted for on the balance sheet and profit and loss statements?

The loan would result in a \$██████████ reduction of Unrestricted Cash on the Green Bank's balance sheet and an equivalent increase in promissory notes receivable.

# District Heating Loop Recommendations



- ▶ Recommend to the full Board of Directors that CEFIA execute documentation to provide \$ [REDACTED] in strategic development loan to this project
- ▶ Recommend to the full Board of Directors that approval of this selection and investment be conditioned upon the completion of all remaining due diligence review, inclusive of all project documentation



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## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #8**

Sector Updates and Progress to Targets

July 18, 2014

# FY 2013 and 2014 Progress to Date

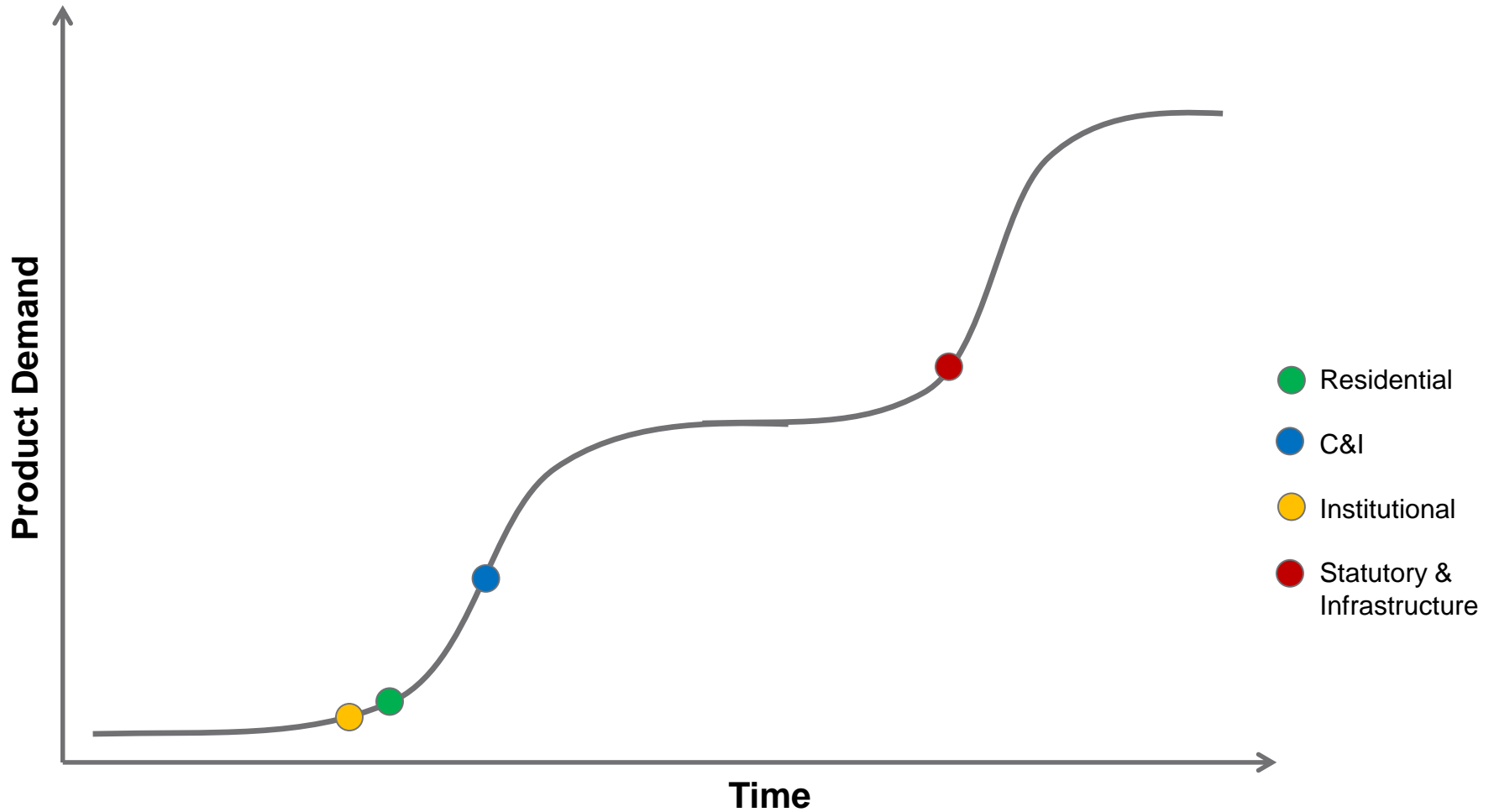


Performance Target	Statutory and Infra.	Residential	Commercial and Industrial	Institutional	Total	Target
CEFIA Investment at Risk	\$44,109,831	\$3,861,430	\$20,179,220	\$751,228	\$68,901,709	\$45,300,000
Private Capital Deployed	\$168,984,447	\$4,887,923	\$6,149,708	\$120,788	\$180,142,866	\$186,600,000
Deployed (MW)	46.5	2.3	3.5	0	50.0	51.1
# of Loans – Projects	3,694	393	28	2	4,117	5,283
Annual Saved (MMBtu)	14,101	1,255	43,548	13,320	72,224	180,000
Subsidies	\$35,509,831	\$0	\$750,000	\$0	\$36,259,831	
Credit Enhancements	\$0	\$546,130	\$0	\$0	\$546,130	
Loans and Leases	<u>\$8,600,000</u>	<u>\$3,315,300</u>	<u>\$19,429,220</u>	<u>\$751,228</u>	<u>\$32,095,748</u>	
<b>Total</b>	<b>\$44,109,831</b>	<b>\$3,861,430</b>	<b>\$20,179,220</b>	<b>\$751,228</b>	<b>\$68,901,709</b>	

Leverage Ratio of 3.6:1.0 to 6.7:1.0 (loans repaid)

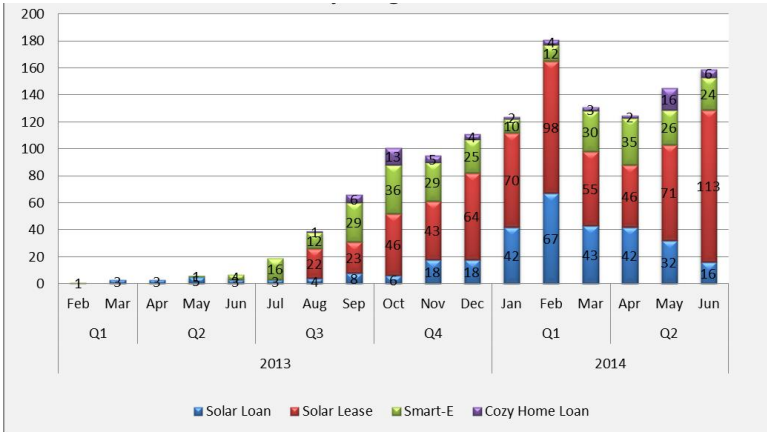
# Sector Status Overview

## Product Demand over Time



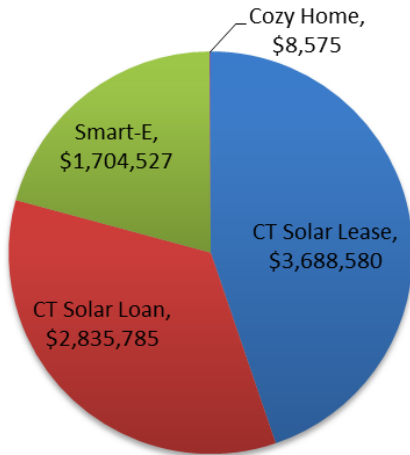
# Residential Sector – Where Are We?

## Pipeline Update

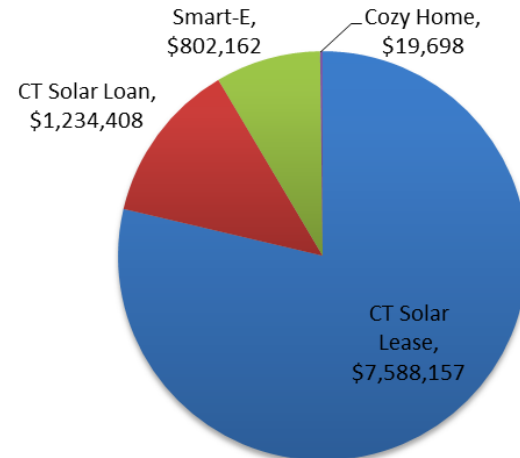


- ▶ **Over 1300 applications to date across 4 products**
  - ▶ 56% pull-through to approval/close
  - ▶ Good credit quality and early performance
- ▶ **170 Eligible contractors**
  - ▶ 80 have submitted projects
  - ▶ Top 15 contractors = 2/3 of apps to date
- ▶ **17 Capital providers**

### 384 Closed Projects for \$8.2M



### 354 Approved Projects for \$9.6M





# Residential Sector – Where Are We?

## Observations/Going Forward



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- ▶ **Solar and HVAC are where engagement is** – not much energy efficiency
- ▶ **Pipeline presenting some challenges**
  - ▶ Solar projects taking much longer to move through and dependent on Solarize, Smart-E is highly seasonal
- ▶ **Contractors and Smart-E Lenders seeing value in program participation**
  - ▶ Variety of lender models: customer acquisition/increased deposits, PR/good community partner, tie into small biz contactor lending
- ▶ **Scaling operations** – data platform in development, evaluating what to outsource
- ▶ **Going Deeper** – Smart-E Bundle is place to sell Solar+, HVAC+
- ▶ **On-Bill Repayment** – Smart-E OBR Phase I targeting 1st half of 2015, then add'l products in Phase II
- ▶ **Driving demand/marketing innovation**
  - ▶ Contractor/Lender engagement
  - ▶ Integrated campaigns
  - ▶ Performance-based and promotional testing
  - ▶ Nielsen segmentation analysis of CT solar customer
- ▶ **Multifamily has good foundation**
  - ▶ Pipeline development is primary focus

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## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #9**

Other Business

July 18, 2014



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## **Board of Directors of the Connecticut Green Bank**

**Agenda Item #10**

Adjourn

July 18, 2014

Subject to changes and deletions

## **CONNECTICUT GREEN BANK**

### **Board of Directors**

Draft Minutes – Regular Meeting

Friday, June 20, 2014

A regular meeting of the Board of Directors of the **Connecticut Green Bank (the “Green Bank”)** was held on June 20, 2014 at the office of the Connecticut Green Bank, 845 Brook Street, Rocky Hill, CT, in the Colonel Albert Pope board room.

1. **Call to Order**: Catherine Smith, Chairperson of the Connecticut Green Bank, called the meeting to order at 9:06 a.m. Board members participating: Bettina Ferguson, State Treasurer’s Office; Norma Glover; John Harrity; Reed Hundt (by phone); Rob Klee, Vice Chairperson of the Green Bank and Commissioner of the Department of Energy and Environmental Protection (“DEEP”); Matthew Ranelli; Catherine Smith, Chairperson of the Green Bank and Commissioner of the Department of Economic and Community Development (“DECD”).

Members absent: Mun Choi, Tom Flynn, and Patricia Wrice.

Staff Attending: Jessica Bailey, George Bellas, Andy Brydges, Joe Buonannata, Mackey Dykes, Brian Farnen, Bryan Garcia, David Goldberg, Ben Healey (by phone), Dale Hedman, Bert Hunter, Andrea Janecko, Alexandra Lieberman, Rick Ross, Cheryl Samuels, Genevieve Sherman (by phone), and Jaime Welsh.

Others Attending: Devon Dillard, State Treasurer’s Office Summer Intern; Katie Dykes, DEEP; Denise Farrell, DEEP (by phone); Henry Link; Frank Owens, Thompson Partners, LLC; Lionel Samuel, State Treasurer’s Office Summer Intern.

### 2. **Public Comments**

Mr. Harrity brought to the attention of the Board that he had recently participated in the CT Roundtable on Climate and Jobs and, after offering his contact information to participants, received an email from a member of a municipal clean energy task force asking for increased communication and support from the Connecticut Green Bank. Mr. Garcia assured the Board that the Bank is happy to conduct joint events with municipal clean energy task forces whenever possible and noted that a quarterly update webinar had just been held for stakeholders with over 100 participants. Mr. Goldberg informed

the Board that the Bank's quarterly newsletter, "Green Bank Matters," has between two to three thousand recipients on its distribution list. Mr. Garcia added that the Board meeting schedule would be added to the newsletter. Attorney Farnen also proposed that Bob Wall, the Bank's Associate Director of Outreach, could provide the Board with a summary of the community events that the Bank sponsors and participates in at the next Board meeting.

### **3. Approval of Minutes for April 25, 2014 Meeting**

Ms. Smith asked the Board to consider the minutes from the April 25, 2014 meeting.

**Upon a motion made by Ms. Glover, seconded by Mr. Harrity, the Board members voted unanimously in favor of adopting the minutes from the April 25, 2014 meeting with two grammatical edits.**

### **4. Update from the President**

Mr. Garcia informed the Board that per the Round 2 SunShot Initiative grant from the U.S. Department of Energy, the Connecticut Green Bank recently released a statewide permitting guide designed to provide all Connecticut municipalities with materials to assist them in reviewing, inspecting, and approving solar photovoltaic projects. The guide may also result in more standardization for contractors.

Mr. Garcia discussed the recent launch of "Solarize U," an adaption of the city-based version of Solarize Connecticut to focus on large employers (e.g., colleges and universities). Six universities will participate in the pilot phase of the campaign this fall.

Regarding the CT Solar Loan, Mr. Garcia noted that the program has generated a significant amount of origination volume and that the Bank's solar loans will soon appear on the Mosaic website, where qualified investors will have an opportunity to invest in residential solar PV across the state of Connecticut.

Related to Mr. Garcia's update on the CT Solar Loan, Ms. Smith mentioned an idea raised in a recent *New York Times* article on how people whose homes may not be a good fit for solar can still "go solar" in some way. Mr. Hunter explained that this idea is called "community solar," and that it was raised before the State Legislature this session but did not move forward. Mr. Garcia also acknowledged that the Connecticut Green Bank and DEEP would plan discussions around community solar in the near future in preparation for next session.

Mr. Garcia updated the Board on the introduction of the federal Green Bank Act of 2014, President Obama's recent mention of the Connecticut Green Bank as a leading investor in clean energy in a national speech, and his participation as master of ceremony at an event with Mr. Klee and Governor Malloy for the release of the Governor's progress report on Connecticut reducing its greenhouse gas emissions per the Climate Change Action Plan of 2005 and the Comprehensive Energy Strategy of 2013.

## **5. Budget and Operations Committee Recommendations**

Prior to Mr. Dykes' overview of the Budget and Operations Committee recommendations, Mr. Garcia noted to the Board that the Connecticut Green Bank is continuing to work towards driving more consumer demand for clean energy and is currently building out its internal systems (i.e., legal, accounting, etc.), but needs to continue to attract private investment. He also emphasized the importance of the external view of the organization and making sure that the Bank is focused on meeting and implementing its Comprehensive Plan.

### **a. FY 2015 and 2016 Comprehensive Plan**

Mr. Dykes presented to the Board an updated Vision Statement for the agency. He explained that the proposed statement is much more ambitious and visionary than its predecessor. Mr. Harrity agreed with Mr. Dykes, and added that the proposed statement positions Connecticut to lead the Green Bank movement. Mr. Ranelli cautioned that the agency's focus should remain on the Green Bank movement in the state.

Members of the Board and Staff discussed various grammatical and linguistic edits to the Vision Statement, including adding the more all-encompassing terms "clean environment" and "energy security." The final take-away was that the vision should be short, succinct, and ambitious.

### **Financing**

Mr. Hunter reviewed the Financing section of the proposed Comprehensive Plan. He noted that private-public partnerships are at the center of the successful efforts of the Connecticut Green Bank thus far.

### **Marketing**

Mr. Dykes highlighted the importance of attracting and deploying capital, and the channels through which that can be achieved.

### **General Comments**

Ms. Smith instructed the Board that any minor comments on the language of the Comprehensive Plan should be submitted to the Bank directly via email and that the remaining meeting time should be spent on substantive discussions.

Mr. Hundt expressed his admiration for the way the Comprehensive Plan was written, but raised a few points for discussion: he wanted clarity in the Plan with respect to affordability, transportation, reduction of greenhouse gases, and the natural gas market; and and a clearer focus on markets in general.

Ms. Glover stated that Staff should review the Statute that created CEFIA to make sure the Plan is in line with it. Mr. Garcia reminded the Board of the updated definition of “clean energy” as defined in Section 16-245n of the Statute.

Ms. Smith emphasized the importance of the Bank focusing on electric vehicles and the infrastructure that they may need. Mr. Klee added that financing is an important tool to bring technologies to scale.

Ms. Smith highlighted the importance of addressing the reduction of greenhouse gases and the natural gas market in the Plan. Mr. Garcia stated that providing consumers with options to access natural gas are being addressed in the Residential sector via the Smart-E Loan product and in the Commercial sector via the C-PACE program supporting natural gas conversions and more efficient equipment replacement. Mr. Ranelli encouraged the Bank to be very clear on how it will support natural gas expansion as there are environmental effects to consider. Ms. Dykes stated that it is important to communicate that financing through the Bank can help reach natural gas conversion goals discussed in the Comprehensive Energy Strategy.

Regarding the framing of markets in the Plan, Mr. Hundt stated that he will send comments to Staff directly via email.

Mr. Ranelli added that there should be a mention of storage in the Plan as net metering is using the grid to make it viable, and that it is important for the Bank to take a position on this.

### **FY 15 Targets**

Mr. Dykes reviewed the Connecticut Green Bank's targets for FY 15, emphasizing the continued movement away from incentives and towards financing. He stated that there are ambitious targets in all sectors: Residential – the products are all taking off; Commercial & Industrial – looking to double the projects of the previous year and also anticipate new product development; Institutional – lots of opportunity; and Statutory & Infrastructure – not as ambitious as the past year because of such a large amount of deployment, yet still high targets.

**b. FY 2015 Budget**

Mr. Dykes reviewed the expected revenues for FY 2015, indicating a 12.9% budget increase from FY 14 to FY 15 for general operations and programs.

A discussion followed on expected cash flows and how much cash the Connecticut Green Bank would have on hand at the end of FY 2015, with some members of the Board feeling as if this amount was too thin.

Ms. Glover noted that in the past, concerns were raised within the Budget and Operations Committee of the Board of Directors that the Bank was holding onto too much money at year's end and that for FY 15 this issue was being addressed. Ms. Smith stressed the importance of banks interested in partnering with the Connecticut Green Bank being comfortable with how much cash the Bank has at year's end. Mr. Hunter clarified that the figure represented only cash and that net assets still would remain very strong. Mr. Bellas added that net assets are also getting stronger with each loan put on the books.

Ms. Smith and Ms. Ferguson agreed that a review of cash flows should be conducted each quarter and reported to the Board to ensure the Bank remains in a good position.

Mr. Dykes stated that the Bank is estimating approximately \$500M in capital deployed for FY 15.

Mr. Dykes discussed a proposed staffing increase of nine employees, bringing the number of full-time employees from 36 to 45. Five positions are new, while the other four include the transition of Mr. Bellas' team from Connecticut Innovations to the Connecticut Green Bank. Regarding a proposed Legal position, Attorney Farnen stated that he and his team would assess the need for an additional employee or continue partnering with outside legal counsel as necessary.



**Upon a motion made by Ms. Glover, seconded by Ms. Ferguson, the Board members voted unanimously in favor of adopting the following resolutions regarding the Comprehensive Plan for Fiscal Years 2015 and 2016 and Budget for Fiscal Year 2015 as written, with the caveat that changes may be proposed at the upcoming meeting of the Connecticut Green Bank Board of Directors on July 18, 2014.**

*Fiscal Years 2015 and 2016 Comprehensive Plan*

**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 (the "Comprehensive Plan");

**WHEREAS**, Article V of the Green Bank Operating Procedures requires the Green Bank Board of Directors (the "Board") to adopt an Annual Plan for each forthcoming fiscal year;

**WHEREAS**, Article V, Section 5.3.2 of the Green Bank by-laws charges the Budget and Operations Committee to recommend to the Board the annual plan of operation; and

**WHEREAS**, the Budget and Operations Committee of the Green Bank has reviewed the proposed Comprehensive Plan for Fiscal Years 2015 and 2016 and voted unanimously in favor of recommending it for approval by the Board.

**NOW**, therefore be it:

**RESOLVED**, that the Board approves the proposed Comprehensive Plan for Fiscal Years 2015 and 2016.

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*Fiscal Year 2015 Budget*

**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**, Article V of the Green Bank Operating Procedures requires the Green Bank Board of Directors (the "Board") to adopt an Annual Operating Budget for each forthcoming fiscal year;

**WHEREAS**, Article V, Section 5.3.2 of the Green Bank by-laws charges the Budget and Operations Committee to recommend to the Board the annual operating budget; and

**WHEREAS**, the Budget and Operations Committee of the Green Bank has reviewed the proposed Budget for Fiscal Year 2015 and voted unanimously in favor of recommending it for approval by the Board.

**NOW**, therefore be it:

**RESOLVED**, that the Board approves the proposed Budget for Fiscal Year 2015.

Due to time limitations, Ms. Smith proposed, and the Board agreed, to adjust the agenda so that items needing Board approval could be addressed first. **Agenda Item #6, the Deployment Committee and Audit, Compliance and Governance Committee Recommendation**, was tabled until the next meeting of the Connecticut Green Bank Board of Directors on July 18, 2014. Agenda Item #8 was covered prior to #7.

## **8. Commercial and Industrial Sector Program Recommendations**

### **a. C-PACE Transactions**

Ms. Bailey provided an overview of the three C-PACE transactions being presented to the Board for approval this month. She noted that the three transactions are all structured in a manner familiar to the Board of Directors, and that due to their size, require Board approval.

*14 Alcap Ridge*

Ms. Bailey discussed the request for C-PACE financing to fund the approximate \$2,000,000 installation of envelope energy efficiency improvements at 12 Alcap Ridge, Cromwell, CT. Ms. Bailey noted that the term loan would be 17 years at a 5.7% interest rate.

*New Century Gardens*

Ms. Bailey discussed the request for C-PACE financing to fund the approximate \$343,000 installation of a 122-kilowatt solar photovoltaic system at Cambridge Apartments, a multifamily property owned by New Century Gardens, at 2209 Main Street, Bridgeport, CT. Ms. Bailey explained that the term loan would be 20 years at a 6.0% interest rate, and includes a 15-year ZREC. She also noted that this is the first Multifamily project to use C-PACE financing.

Mr. Ranelli remarked that it is nice to see a proposal for a Multifamily project.

*J.W. Green*

Ms. Bailey discussed the request for C-PACE financing to fund the approximate \$446,000 installation of a 125-kilowatt solar photovoltaic system at 276 S. Washington Street, Plainville, CT. She explained that the term loan would be 20 years at 6.0% interest rate, including a 15-year ZREC.

**Upon a motion made by Ms. Glover, seconded by Ms. Ferguson, the Board members voted unanimously in favor of adopting the following resolutions regarding the C-PACE transactions for 1) 14 Alcap Ridge, Cromwell; 2) New Century Gardens, Bridgeport; and 3) J.W. Green, Plainville.**

*14 Alcap Ridge*

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Green Bank seeks to provide a \$1,984,880 construction and (potentially) term loan under the C-PACE program to 14 Alcap, LLC, the property owner of 14 Alcap Ridge, Cromwell, CT (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 Comprehensive Plan.

**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 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 of Directors dated June 13, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from June 20, 2014.

**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.

**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.

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*New Century Gardens*

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Green Bank seeks to provide a \$343,374 loan under the C-PACE program to New Century Gardens, LLC, the property owner of 2209 Main

St, Bridgeport, CT (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 Comprehensive Plan.

**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 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 of Directors dated June 13, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from June 20, 2014.

**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.

**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.

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*J.W. Green*

**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 (the "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 has approved a \$40,000,000 C-PACE construction and term loan program; and

**WHEREAS**, the Green Bank seeks to provide a \$446,205 construction and (potentially) term loan under the C-PACE program to J. W. Green Co., Inc., the property owner of 276 S. Washington St., Plainville, CT (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 Comprehensive Plan.

**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 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 of Directors dated April 17, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 90 days from June 20, 2014.

**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.

**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.

## **7. Statutory and Infrastructure Sector Program Recommendation**

### **a. Southington Anaerobic Digester Project**

Mr. Ross discussed the request for an approximate \$4,000,000 subordinated loan to fund the installation of a 1.6-megawatt anaerobic digestion project in Southington, CT. He noted that the Deployment Committee of the Connecticut Green Bank's Board of Directors had already reviewed this project thoroughly, but due to its size, the project needed full Board approval.

Mr. Ranelli explained that because Covanta Energy (in partnership with Turning Earth, LLC) is the developer of this project and is also a client of his law firm, he would abstain from voting.

**Upon a motion made by Ms. Glover, seconded by Ms. Ferguson, the Board members voted unanimously in favor of adopting the following resolution regarding the Southington Anaerobic Digester Project as written. Mr. Ranelli abstained from voting.**

**WHEREAS**, Turning Earth Central Connecticut, LLC (“TECC”) – Integrated Organic Recycling Facility, a limited liability company wholly-owned by Turning Earth, LLC, has submitted a proposal for an Anaerobic Digestion facility to be located in Southington, CT;

**WHEREAS**, in early 2013, the Connecticut Green Bank (the “Green Bank”) released a rolling Request for Proposals in the third round of solicitations for anaerobic digestion (AD) projects to participate in a statutorily mandated AD Pilot program, an initiative aimed at reducing landfill waste through the recycling of organics, helping to promote sustainable practices and economic prosperity of Connecticut farms and other businesses by using organic waste with on-site anaerobic digestion facilities to generate electricity and heat;

**WHEREAS**, Turning Earth, LLC submitted the TECC - Integrated Organic Recycling Facility proposal in response to develop, in the Town of Southington, a 1.6 MW AD and cogeneration project and, after a thorough review, was selected as a project that is consistent with the Green Bank Comprehensive Plan and in the best interests of ratepayers and was offered a subordinated loan in the amount not to exceed \$4,012,984 at a 2 percent interest rate for 10 years, to attract private capital and representing 18 percent of the overall project’s capital expense as well as a preferential interest rate valued by staff at an amount that does not exceed the \$450 per kilowatt limit under Section 103 of Public Act 11-80; and

**WHEREAS**, at a regular meeting held on May 15, 2014, the Deployment Committee passed resolutions to recommend to the Green Bank Board of Directors their approval (a) of the TECC - Integrated Organic Recycling Facility Project and (b) for the Green Bank to execute definitive loan documentation for a \$4,012,984 subordinated loan with terms and conditions consistent with the memorandum submitted to the Deployment Committee dated May 8, 2014.

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors approves and authorizes the Green Bank staff to execute definitive loan documentation materially based on the term sheet set forth in the due diligence package dated June 20, 2014 for financial support in the form of a \$4,012,984 subordinated loan financing.

**RESOLVED**, that this Board action is consistent with Section 103 of Public Act 11-80.

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

Discussion on the Bridgeport District Heating and Cooling project was tabled until the next meeting of the Deployment Committee of the Connecticut Green Bank's Board of Directors.

**9. Legislative Update**

Mr. Goldberg explained to the Board that Connecticut Green Bank Staff are currently working with DEEP, the Governor's Office and other partners to address an issue affecting the Bank's Residential Solar Investment Program ("RSIP"). Public Act 14-134 was signed into law on June 6, 2014 and mistakenly included a provision that changes language within RSIP so that those who have received an Expected Performance-Based Buydown ("EPBB") are no longer allowed to net meter. Mr. Goldberg explained to the Board that the Bank Staff was working through several different solutions, and, in the interim, would temporarily hold all RSIP applications in order to maintain compliance with the new law.

Attorney Farnen stated that all parties agree that this was a mistake, but is one that needed to be addressed immediately. Mr. Hedman reassured the Board that Bank Staff was working out several options to remedy the issue.

Ms. Smith acknowledged the challenge of this issue and encouraged Bank Staff to consider all positives and negatives associated with the solutions they propose as a remedy.

**10. Adjournment:** Upon a motion made by Ms. Glover, seconded by Ms. Ferguson, the Board voted unanimously in favor of adjourning the June 20, 2014 meeting at 11:09 a.m.

Respectfully Submitted,



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Catherine Smith, Chairperson

# **Connecticut Green Bank**

## **Comprehensive Plan**

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*Fiscal Years 2015 and 2016*

July 18, 2014

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## Executive Summary

In June of 2011, in nearly a unanimous bipartisan manner, the Governor and the Connecticut General Assembly set clean energy policy in a new course in our state.<sup>1</sup> A major component of that policy was the creation of the nation's first "green bank" – the Clean Energy Finance and Investment Authority (CEFIA), recently renamed the Connecticut Green Bank (the Green Bank).<sup>2</sup> Over the past couple of years, this quasi-public organization has been transformed from its predecessor, who invested over 80 percent of its resources in grants, rebates and subsidies to build a clean energy market in our state, to a new entity that now invests over 80 percent of its resources in loans, leases and credit enhancements to grow the clean energy market in our state. The Connecticut Green Bank has become a model for other states, as well as the federal government,<sup>3</sup> that are seeking to use limited public resources to attract private capital investment in their clean energy economies in order to make clean energy more accessible and affordable to consumers.

The focus of the Green Bank is to attract and deploy capital to fill the investment gap needed to support the successful implementation of the state's clean energy policy goals. To that end, the organization has established a new vision:

*To lead the green bank movement by accelerating private investment in clean energy deployment for Connecticut to achieve economic prosperity, create jobs, promote energy security and address climate change.*

Experts suggest that an investment gap of \$1 trillion a year – or the so called "clean trillion" – exists until 2030 for green infrastructure growth to address important environmental challenges such as global climate change.<sup>4</sup> The emergence of "Cli-Fi" (or climate finance) in the recent Intergovernmental Panel on Climate Change (IPCC) report,<sup>5</sup> acknowledges the scale of investment and finance needed to transition to a global low-carbon economy at \$360 billion a year in order to stay within the two-degree Celsius safety zone. Although we know that the levels of investment necessary to achieve our national and global priorities are high, and that the repercussions for not addressing them can indeed be felt locally, Connecticut is doing its part to attract the billions of dollars necessary to achieve its ambitious clean energy policy objectives, which will result in a reduction of greenhouse gas emissions and the creation of jobs. From the \$1.5 billion necessary to convert 200,000 households from oil to natural gas and the \$1.5 billion of investment required to deploy rooftop solar photovoltaic (PV) systems on the roofs of 150,000 households, to the \$3 billion needed to reduce the energy consumption of our

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<sup>1</sup> Public Act 11-80 "An Act Concerning the Establishment of the Connecticut Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future".

<sup>2</sup> Public Act 14-94 "An Act Concerning Connecticut's Recycling and Materials management Strategy, the Underground Damage Prevention Program, and Revisions to Energy and Environmental Statutes".

<sup>3</sup> In the 113<sup>th</sup> Congress, H.R. 4522 was released in the U.S. House of Representatives and S. 2271 in the U.S. Senate to establish a national green bank to assist in the financing of qualified clean energy projects and qualified energy efficiency projects.

<sup>4</sup> Kaminker, C. et al. (2013), "Institutional Investors and Green Infrastructure Investments: Selected Case Studies", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 35, OECD Publishing.  
<http://dx.doi.org/10.1787/5k3xr8k6jb0n-en>

<sup>5</sup> *Climate Change 2014: Mitigation of Climate Change* by the IPCC in Chapter 16 "Cross-Cutting Investment and Finance Issues" (April 12, 2014).

commercial and industrial property owners and over \$500 million investment to support the state government’s “Lead by Example” efforts to reduce energy consumption by 20 percent by 2018, the level of investment is large and will require a smarter and more efficient use of scarce public resources to attract multiples of private capital investment in our clean energy economy.

President Barack Obama said it best:

*“We’ve got public banks like Connecticut’s Green Bank and private banks like Goldman Sachs ready to invest billions of dollars in renewable energy.”<sup>6</sup>*

Attracting low cost and long-term private capital will make clean energy more accessible and affordable to consumers, resulting in greater and accelerated deployment. More deployment of clean energy at a quicker pace will help reduce greenhouse gas emissions and create jobs. The contents of this Comprehensive Plan for the Green Bank demonstrate how we plan on supporting our mission and the public policy objective of delivering consumers cheaper, cleaner and more reliable sources of energy while creating jobs and supporting local economic development.

As you will read, the Green Bank is capitalized by several public sources, including a system benefit charge created during electric restructuring and carbon allowance proceeds through the Regional Greenhouse Gas Initiative (RGGI). The legislature also provided it with other tools, including bonding and access to bond funds – a Special Capital Reserve Fund, Green Loan Guaranty Fund, and Renewable Energy and Efficient Energy Finance Account – that can be accessed to support the mission of the Green Bank. As part of the process for producing this Comprehensive Plan, an extensive review of current and historical public policy on clean energy in statute was conducted – which resulted in the discovery of Connecticut’s first clean energy policy passed in 1978 that can be applied to the current and future market for clean energy in our state. The results of that public policy review are included in an accompanying memo. The Green Bank will leverage a growing statewide energy brand of Energize Connecticut and manage cutting edge online and on-the-ground marketing strategies like Solarize and Energize to provide consumers with easy access to affordable capital for clean energy. By attracting and deploying private capital at 5, 10, or 20 to 1 of public funds, through public-private partnerships we can support the successful implementation of Connecticut’s clean energy policy goals that are required through statute (i.e. Public Act 11-80), regulation (i.e. Conservation and Load Management Plan), and planning (i.e. Comprehensive Energy Strategy and Integrated Resources Plan). Providing easier access to low cost and long-term private capital will make clean energy more affordable and accessible to consumers.

The Comprehensive Plan is structured around four consumer sectors that outline our approach, including:

- Residential Sector – single and multifamily properties
- Commercial and Industrial Sector

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<sup>6</sup> President Barrack Obama in a speech on American Energy on May 9, 2014.

- Institutional Sector – state, municipal, universities, schools, and hospital properties
- Infrastructure Sector – grid-tied projects, as well as statutorily required programs (i.e. Residential Solar Investment Program, Anaerobic Digester Pilot Program, etc.)

Within each sector there is a review of the regulatory and planning policies, an estimate of the total available market (TAM) and serviceable addressable market (SAM), product and program overviews, fiscal year 2015 targets (including number of projects, capital deployed, clean energy deployed, and energy generated and saved), benchmarks, and key performance indicators, and the objective function for projects within the sector.

The reader will notice several other important strategic initiatives that require coordination between the sectors as well as with outside partners, including, but not limited to the SunShot initiative to reduce “soft costs” from rooftop solar PV, a developing micro grid initiative, on bill repayment for residential customers, the development of several commercial sector financing products with the Connecticut Energy Efficiency Fund, and a multifamily and affordable housing portfolio of programs.

The Comprehensive Plan concludes with the budget reviewed and approved by the Board of Directors of the Connecticut Green Bank for Fiscal Year 2015. The budget outlines the revenues as well as the operations and program expenses necessary to implement the plan. The Comprehensive Plan will guide the decisions made by the Board of Directors and staff of the Connecticut Green Bank to meet its mission and is the formal document required by law that informs and directs future decisions of the organization.

## Organization Overview

The Connecticut Green Bank (“the Green Bank”)<sup>7</sup> was established by the Governor and Connecticut’s General Assembly on July 1, 2011 through Public Act 11-80 as a quasi-public agency that supersedes the former Connecticut Clean Energy Fund. As the nation’s first state “Green Bank”, the Connecticut Green Bank leverages public and private funds to drive investment and scale-up clean energy deployment in Connecticut.

The Connecticut Green Bank’s purposes are:

- Developing programs to finance and otherwise support clean energy investment in residential, municipal, small business and larger commercial projects and such other programs as the Green Bank may determine;
- Supporting financing or other expenditures that promote investment in clean energy sources to foster the growth, development and commercialization of clean energy sources and related enterprises; and
- Stimulating demand for clean energy and the deployment of clean energy sources within the state that serves end-use customers in the state.

The Green Bank’s purposes are codified in Section 16-245n(d)(1) of the General Statutes of Connecticut and its board approved [Resolution of Purposes](#).

## Vision

To lead the green bank movement by accelerating private investment in clean energy deployment for Connecticut to achieve economic prosperity, create jobs, promote energy security and address climate change.

## Mission

To support the Governor’s and Legislature’s energy strategy to achieve cleaner, cheaper and more reliable sources of energy while creating jobs and supporting local economic development.

## Goals

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

1. To attract and deploy capital to finance the clean energy<sup>8</sup> goals for Connecticut, including:

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<sup>7</sup> Public Act 11-80 repurposed the Connecticut Clean Energy Fund (CCEF) administered by Connecticut Innovations, into a separate quasi-public organization called the Clean Energy Finance and Investment Authority (CEFIA). Per Public Act 14-94, CEFIA was renamed to the Connecticut Green Bank.

<sup>8</sup> Public Act 11-80 defines "clean energy" broadly and includes familiar renewable energy sources such as solar photovoltaic, solar thermal, geothermal, wind and low-impact hydroelectric energy, but also includes fuel cells, energy derived from anaerobic digestion (AD), combined heat and power (CHP) systems, infrastructure for alternative fuels for transportation and financing energy efficiency projects.

- a. Help Connecticut in becoming the most energy efficient state in the nation;
  - b. Scale-up the deployment of renewable energy in Connecticut; and
  - c. Provide support for the infrastructure needed to lead the clean energy economy.
2. To develop and implement strategies that bring down the cost of clean energy in order to make it more accessible and affordable to consumers.
  3. To reduce reliance on grants, rebates, and other subsidies and move towards innovative low-cost financing of clean energy deployment.

These goals support the implementation of Connecticut’s clean energy policies be they statutory (i.e., Public Act 11-80, Public Act 13-298), planning (i.e., Comprehensive Energy Strategy, Integrated Resources Plan), or regulatory in nature.

## Metrics of Success

The following is a breakdown of the key metrics of success for the Connecticut Green Bank:

- **Objective Function** – maximizing the amount of clean energy generated (or energy saved) per dollar of ratepayer funds at risk;<sup>9</sup>
- **Attract Capital** – there are several measures used, including the total amount of public and private investment in clean energy; amount of private capital or non-ratepayer fund investment in Connecticut’s clean energy economy; amount of public capital or ratepayer fund investment in Connecticut’s clean energy economy; leverage ratio of the amount of public versus private investment in clean energy; the ratio of the amount of public funds invested in the form of subsidies (e.g., grants), credit enhancements (e.g., loss reserves), and financing (e.g., loans and leases); and credit quality of borrowers (e.g., FICO credit scores and debt-to-income ratios).
- **Deploy Capital** – there are several measures used, including the total amount of clean energy deployed (e.g., kilowatt (kW), kW peak, including summer and winter); amount of clean energy generated and/or saved (e.g., kilowatt-hour (kWh) and million British thermal units (MMBtu)) over a year and estimated lifetime of a project; savings to investment ratio; and customer acquisition costs or the amount of marketing expenses it costs to acquire a customer to install a project as well as per energy unit generated or saved over its lifetime.
- **Green Bank** – there are several metrics of success that are important for the green bank operations, including total, distribution, diversity, and growth of current and non-current assets,

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<sup>9</sup> Objective Function Protocol – Version 1.0 – [http://www.ctcleanenergy.com/documents/5a\\_Objective\\_Function\\_Protocol\\_Version\\_1.0\\_Memo\\_061314.pdf](http://www.ctcleanenergy.com/documents/5a_Objective_Function_Protocol_Version_1.0_Memo_061314.pdf)



strength and management of the balance sheet, and sources, amount, and growth of revenues and minimization of expenses, including grants.

- **Public Benefit** – there are several measures used, including estimate of the direct, indirect and induced jobs created as a result of the total capital invested in clean energy deployment;<sup>10</sup> an estimate of the amount of greenhouse gas emissions like carbon dioxide and methane, other air emissions like sulfur dioxide and nitrous oxides, and standard equivalencies (e.g., cars off the road and acres of trees) reduced over the life of a project.

These key metrics of success for the Green Bank are estimated for each of its programs and investments as well as tracked using established measurement and verification protocols, independently audited, and reported annually through a Comprehensive Annual Financial Review (CAFR).

## Governance

Pursuant to Section 16-245n of the General Statutes of Connecticut, the powers of the Connecticut Green Bank are vested in and exercised by a Board of Directors that is comprised of eleven voting and two non-voting members each with knowledge and expertise in matters related to the purpose of the organization (see Table 1).

Table 1. Board of Directors of the Connecticut Green Bank

Position	Status	Voting	Name	Organization
State Treasurer (or designee)	Ex Officio	Yes	Bettina Ferguson	Treasurer’s Office
Commissioner of DEEP <sup>11</sup> (or designee)	Ex Officio	Yes	Robert Klee <sup>12</sup>	DEEP
Commissioner of DECD <sup>13</sup> (or designee)	Ex Officio	Yes	Catherine Smith <sup>14</sup>	DECD
Residential or Low Income Group	Appointed	Yes	Pat Wrice	Operation Fuel
Investment Fund Management	Appointed	Yes	Norma Glover	NJG Associates
Environmental Organization	Appointed	Yes	Matthew Ranelli <sup>15</sup>	Shipman & Goodwin
Finance or Deployment	Appointed	Yes	Thomas Flynn	Environmental Data Resources
Finance of Renewable Energy	Appointed	Yes	Reed Hundt <sup>16</sup>	Coalition for Green Capital
Finance of Renewable Energy	Appointed	Yes	Kevin Walsh	GE Energy Financial Services
Labor	Appointed	Yes	John Harranty	IAM Connecticut
R&D or Manufacturing	Appointed	Yes	Mun Choi	University of Connecticut
President of the Green Bank	Ex Officio	No	Bryan Garcia	Connecticut Green Bank
Board of Connecticut Innovations <sup>17</sup>	Ex Officio	No	(unfilled)	(unfilled)

<sup>10</sup> The Connecticut Department of Economic Development (DECD) has approved the jobs estimates calculations as a result of the Green Bank financed clean energy projects – [click here](#).

<sup>11</sup> Department of Energy and Environmental Protection

<sup>12</sup> Vice Chairperson of the Board of Directors and Chairperson of the Budget and Operations Committee

<sup>13</sup> Department of Economic and Community Development

<sup>14</sup> Chairperson of the Board of Directors

<sup>15</sup> Secretary of the Board of Directors and Chairperson of the Audit, Compliance and Governance Committee

<sup>16</sup> Chairperson of the Deployment Committee

<sup>17</sup> It should be noted that several members of the Board of Directors of the Green Bank currently serve on the Board of Directors of Connecticut Innovations, including Mun Choi and Catherine Smith.

The Board of Directors is governed through the statute, as well as an [Ethics Statement](#) and [Ethical Conduct Policy](#), [Resolutions of Purposes](#), [Bylaws](#), and Comprehensive Plan. All meetings, agendas, and materials of the Green Bank’s Board of Directors and its Committees are publicly available on the organizations website.<sup>18,19</sup>

## Organizational Structure

The organizational structure of the Connecticut Green Bank is comprised of four parts:

- **Corporate Division** – this division is responsible for providing support services to the investment and program divisions, including accounting, legal, marketing, and policy support to help them meet their goals.
- **Investment Division** – this division is responsible for *attracting capital* to finance the clean energy goals for Connecticut.
- **Program Division** – this division is responsible for *deploying capital* to meet the clean energy goals for Connecticut. There are four (4) program divisions –Residential (including multifamily), Commercial & Industrial, Institutional (e.g., state/municipal, universities, schools, hospitals (“SMUSH”)) and Statutory and Infrastructure.
- **Administrative Division** – through a memorandum of understanding (MOU) between Connecticut Innovations (CI) and the Connecticut Green Bank, various administrative services are provided to the Green Bank including human resources and information technology.

The Green Bank staff is attentive to the needs of its stakeholders, committed to the vision and mission of the organization, and conducts itself in a collaborative and professional manner that demonstrates its knowledge and leadership of clean energy policy, finance, and technology.

An Employee Handbook and [Operating Procedures](#) have been approved by the Board of Directors and serve to guide the staff to ensure that it is following proper contracting, financial assistance, and other requirements.

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<sup>18</sup> <http://ctcleanenergy.com/AboutCEFIA/CEFIABoardMeetings/tabid/604/Default.aspx>

<sup>19</sup> <http://ctcleanenergy.com/AboutCEFIA/CEFIACommitteeMeetings/tabid/603/Default.aspx>

## Public Policy

The Connecticut Green Bank's role is to support the implementation of public policy on clean energy in Connecticut by attracting and deploying capital to finance the achievement of those goals. Over the course of the legislative history on clean energy in Connecticut and specifically the last decade, there have been significant public policies passed that guide the programs of the Green Bank, including, but not limited to:<sup>20</sup>

- **Public Act 78-262** – “An Act Establishing a State Energy Policy” is Connecticut’s original energy policy from 1978. The original energy policy declared the following matters as important and are the focus of the policy - engaging in energy conservation, energy efficiency, renewable energy deployment, energy diversification, reducing reliance on interruptible sources of energy, reducing energy costs, assuring that low-income households have essential energy services, public education and consumer awareness, and including financial and technical assistance.
- **Public Act 98-28** – “An Act Concerning Electric Restructuring,” deregulated the generation component of the electric utility industry and opened it up to competition, established the Class I and Class II Renewable Portfolio Standards, and created the Conservation and Load Management (C&LM) Fund to be administered by the electric distribution companies (EDCs) and the Renewable Energy Investment Fund (Clean Energy Fund or CEF) to be administered by Connecticut Innovations (CI) and later on by the Connecticut Green Bank.
- **Public Act 05-01** – “An Act Concerning Energy Independence,” established the Class III Renewable Portfolio Standard for CHP and energy efficiency, Project 100 requiring the electric distribution companies to sign long-term power purchase agreements for no less than 100 megawatts of Class I renewable energy sources developed in Connecticut, and the joint committee of the Energy Conservation Management Board (ECMB) and CEF to coordinate on programs and activities.
- **Public Act 07-242** – “An Act Concerning Electricity and Energy Efficiency,” expanded Project 100 to Project 150, requires the municipal utilities to submit a comprehensive report to the CEF on the actions to promote renewable energy sources, modifies the definition of clean energy for the CEF, and creates a “Municipal Renewable Energy and Efficient Energy Grant Account” for disaster relief centers and high schools to be run by CI through the CEF in consultation with the Department of Public Utility Control, Department of Education, and Department of Emergency Management and Homeland Security.<sup>21</sup> The act also addresses energy improvement districts,

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<sup>20</sup> Public Policy Review – Comprehensive Plan FY 2015 through FY 2016 Memo – [http://www.ctcleanenergy.com/documents/5a\\_Public\\_Policy\\_Review\\_Comprehensive\\_Plan\\_Memo\\_061314.pdf](http://www.ctcleanenergy.com/documents/5a_Public_Policy_Review_Comprehensive_Plan_Memo_061314.pdf)

<sup>21</sup> The bonds were authorized in Sec. 91 of PA 07-242 and codified in CGS Sec. 16-245bb. Sec. 30 of PA 10-44 decreased the authorization from \$50,000,000 to \$18,000,000, effective July 1, 2010.

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## Definition of Clean Energy

Clean energy means solar photovoltaic energy, solar thermal, geothermal energy, wind, ocean thermal energy, wave or tidal energy, fuel cells, landfill gas, hydropower that meets the low-impact standards of the Low-Impact Hydropower Institute, hydrogen production and hydrogen conversion technologies, low emission advanced biomass conversion technologies, alternative fuels, used for electricity generation including ethanol, biodiesel or other fuel produced in Connecticut and derived from agricultural produce, food waste or waste vegetable oil, provided the Commissioner of Energy and Environmental Protection determines that such fuels provide net reductions in greenhouse gas emissions and fossil fuel consumption, usable electricity from combined heat and power systems with waste heat recovery systems, thermal storage systems, other energy resources and emerging technologies which have significant potential for commercialization and which do not involve the combustion of coal, petroleum or petroleum products, municipal solid waste or nuclear fission, financing of energy efficiency projects, projects that seek to deploy electric, electric hybrid, natural gas or alternative fuel vehicles and associated infrastructure, any related storage, distribution, manufacturing technologies or facilities and any Class I renewable energy source, as defined in section 16-1.

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interconnection standards, property, sales, and use tax exemptions for clean energy, a definition for weatherization, and modifies the Class I and III RPS.

- **Public Act 11-80** – “An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut’s Energy Future,” created DEEP and charged it with energy and policy planning and regulation, including increasing the use of clean energy and technologies that support clean energy. The act also creates the Connecticut Green Bank, sets energy reduction targets for state facilities of 20% by 2018, initiates a 3-year pilot anaerobic digester and combined heat and power program administered by the Green Bank, establishes a residential solar investment program administered by the Green Bank, creates a zero-emission renewable energy credit (ZREC) and low-emission renewable energy credit (LREC) reverse auction program for long-term contracts administered by the EDCs, and designates the Green Bank to oversee a \$20 million Green Loan Guaranty Fund, capitalized state bond funds, in consultation with the Energy Conservation Management Board (ECMB) and Connecticut Health and Educational Facilities Authority (CHEFA).
- **Public Act 12-2** – “An Act Implementing Certain Provisions Concerning Government Administration,” established the Commercial Property Assessed Clean Energy (C-PACE) Program to be administered by the Connecticut Green Bank, modifies the definition of clean energy for the Green Bank, permits the Green Bank to issue up to \$50 million in bonds backed by a special

capital reserve fund (SCRF) to support bond financing for the Green Bank,<sup>22</sup> and clarifies the quasi-public status of the Green Bank.

- **Public Act 12-189** – “An Act Authorizing and Adjusting Bonds of the State for Capital Improvements, Transportation, and Other Purposes,” changes the “Municipal Renewable Energy and Efficient Energy Grant Account” to the “Renewable Energy and Efficient Energy Finance Account” and redirects the use of bond proceeds from CI to the Green Bank who must work in consultation with DEEP, DECD, and the State Treasurer.<sup>23</sup> The \$18 million in bond funds can be used for financial assistance for energy efficient generation with priority given to disaster relief centers and high schools as well as projects that use major system components manufactured or assembled in Connecticut.
- **Public Act 13-298** – “An Act Concerning Implementation of Connecticut’s Comprehensive Energy Strategy,” reinforces key findings from DEEP with regards to the implementation of the Comprehensive Energy Strategy (CES) and includes the Green Bank in numerous instances, including coordination with ECMB, implementation of community-based marketing campaign pilots for natural gas conversions and energy efficiency, inclusion of thermal energy and electric storage technologies in the “Renewable Energy and Efficient Energy Finance Account” reinforcing the importance of financing towards the micro grid policy, and the development and implementation of an on bill repayment program for residential customers using private capital. The act also makes important adjustments to the C-PACE program to support lender consent, further defines critical facilities for micro grid purposes, and clarifies language with respect to virtual net metering, sub-metering, and energy improvement district policy.
- **Public Act 14-94** – “An Act Concerning Connecticut’s Recycling and Materials Management Strategy, the Underground Damage Prevention Program, and Revisions to Energy and Environmental Statutes,” renames the Clean Energy Finance and Investment Authority to the Connecticut Green Bank, allows micro grid projects as eligible for C-PACE financing, and provides cost recovery mechanism for the residential on bill repayment program. The bill also requires the Green Bank to conduct a study on residential property assessed clean energy (R-PACE), updated high performance building standards for state facilities and state funded construction, and authorized a limited liability company to be a thermal energy transportation company, regulated by PURA, for a district heating loop in Bridgeport which the Green Bank is involved in.

These statutes comprise a majority of the public policies that seek to advance clean energy in Connecticut and fall within the sphere of the Connecticut Green Bank.<sup>24</sup>

Beyond these statutes, there are various planning documents as well as regulatory decisions that also serve to inform the clean energy policies of the state. The public policies outlined in the 2013 Comprehensive Energy Strategy (CES) and the 2012 Integrated Resources Plan (IRP) developed by DEEP’s

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<sup>22</sup> Sec. 161 of PA 12-2 of the June Special Session contains the SCRF bonding provisions.

<sup>23</sup> Sec. 36 of PA 12-189 changed the administering entity in CGS Sec. 16-245bb from Connecticut Innovations, Incorporated, to Clean Energy Finance and Investment Authority and added investments, loans and other forms of financial assistance to allowable uses of proceeds, effective July 1, 2012.

<sup>24</sup> Special thanks to Kevin McCarthy and his team at the Office of Legislative Research for their support in reviewing this section.

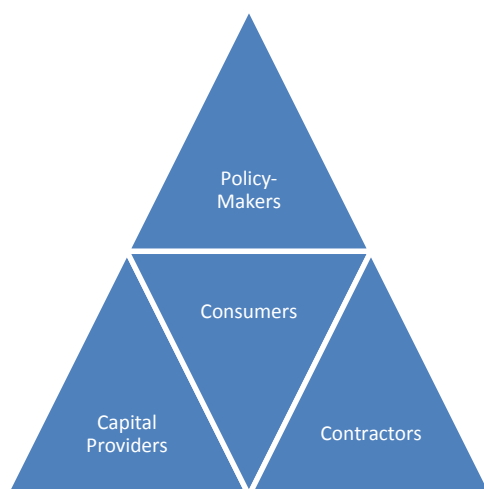
approval of the Electric and Natural Gas Conservation and Load Management Plan (C&LM Plan), and their impact on the programs of the Green Bank, are highlighted within each of the four programmatic sectors below. The Green Bank also interplays with the administrators of the Conservation and Load Management Fund (i.e. CL&P and UI) and the Energy Efficiency Board through coordination of our staff as well as a Joint Committee to continue to work to harmonize programs and initiatives to support the implementation of public policy goals.

## Stakeholders

The Connecticut Green Bank identifies four (4) primary stakeholders (see Figure 1) that are the focus of its programs, products, and services, including:

- Consumers
- Capital Providers
- Contractors
- Policy-Makers

Figure 1. Stakeholders - The Three C's (Capital Providers, Consumers, and Contractors) and Policy-Makers



### Consumers

A key Green Bank goal is to eliminate the financial barriers to energy efficiency upgrades and clean energy investment as well as reduce consumer reliance on grants, rebates, and other subsidies by, facilitating the transition to innovative low-cost financing of clean energy deployment using private capital. Consumers of all types (i.e., homeowners, renters, businesses, not-for-profits) seek cheaper, cleaner and more reliable sources of energy. Contractors must be able to provide consumers with comprehensive and “deeper” energy solutions while capital providers must offer consumers immediate cash flow positive returns by financing their investments. The Green Bank plays an important role in bringing consumers and contractors together by providing them with easy access to affordable capital so that they can implement energy solutions for their homes, businesses, or institutions.

### Capital Providers

As a key goal is to attract capital to finance the clean energy goals for Connecticut and to develop and implement strategies that bring down the costs of clean energy (including lower interest rates, extended

maturities, etc.) to make it more accessible and affordable to consumers, working in partnership with capital providers is vital to the success of the green bank model. There are local (e.g., community banks and credit unions), state, regional, and national banks, as well as equity, tax equity, and other institutional and crowd-sourced investors that seek to finance and invest in clean energy projects in Connecticut. The Green Bank's role is to use the limited public funds it receives and leverage it to attract more private capital investment in clean energy deployment in Connecticut. The Green Bank provides several channels for capital providers to get into clean energy investing in Connecticut while earning a reasonable rate of return.

### **Contractors**

As a key goal is to deploy capital to finance the clean energy goals for Connecticut and to develop and implement strategies that bring down the costs of clean energy (i.e., installed costs) to make it more accessible and affordable to consumers, working in partnership with qualified and certified contractors is also vital to the success of the green bank model. Qualified contractors (including the full gamut from smaller and more local businesses to the largest of energy services companies, or "ESCOs", that operate on a regional, national and even global scale) must have access to working capital to support the growth and operations of their businesses – including creating new jobs – while providing quality, timely, and cost-effective clean energy and energy efficiency solutions and financing options for consumers.

### **Policy-Makers**

The Connecticut Green Bank was established by policy-makers to leverage public funds to attract more private capital investment to scale-up clean energy deployment in Connecticut. It is the mission of the Green Bank to support the Governor's and Legislature's energy strategy to achieve cleaner, cheaper and more reliable sources of energy while creating jobs and supporting local economic development. Through its Board of Directors, the Green Bank has established a Comprehensive Plan that seeks to implement the objectives of policy-makers to deploy more clean energy at a faster pace while more efficiently managing public funds and attracting significantly more private capital. As the implementer of the C&LM Plan, the Energy Efficiency Board (EEB) and EDCs are important stakeholders for the Green Bank as well, including through the Joint EEB-Connecticut Green Bank Committee.

## Financing

A major focus of the Green Bank is to attract private capital to finance the clean energy goals for Connecticut and to ensure that consumers and contractors are able to access cleaner, cheaper and more reliable sources of energy. Connecticut energy policy has ambitious goals and targets across all sectors. Goals such as:

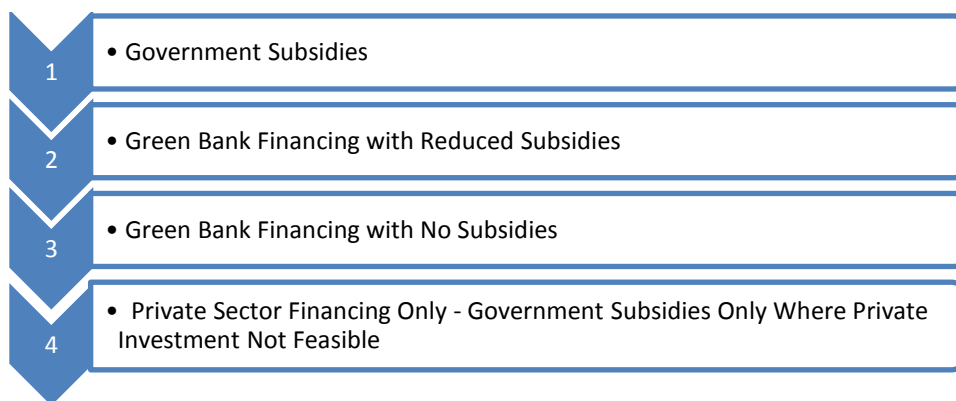
- Enable energy efficiency improvements for at least 15% of single family homes in the state by 2020 – approximately 150,000 homes at \$10,000 to achieve 20% energy reduction would cost homeowners *\$1.5 billion* (PA 11-80, Sec. 124). Providing homeowners that use heating oil and can't access the natural gas expansion with access to low cost and long-term private capital to make their homes more energy efficient is important as well.
- Provide households and businesses with access to low cost and long-term private capital to help them convert from oil to natural gas for at least 200,000 households and 80,000 businesses in the state on-main in 10 years – at \$7,500 for an average cost of a household conversion with equipment yields an estimated cost to homeowners of *\$1.5 billion* (Natural Gas Expansion Plan). Assist households and businesses that convert to natural gas to also go deeper on energy efficiency is important as well.
- Realize the estimated potential market of over 150,000 households to install solar photovoltaic (PV) in the state – at an average cost of \$27,000 per system would require an investment of *\$4.0 billion* (PA 11-80, Sec. 106, Residential Solar Investment Program)
- Reduce energy use in State government buildings (which collectively spend approximately \$200 million annually on energy) at least 20% from 2010 levels by January 1, 2018, would require an investment of at least *\$500 million* (PA 11-80, Sec. 118)
- Realize opportunities for energy efficiency in the commercial real estate sector, estimated by HR&A to be approximately 400 million SF state-wide, could easily require *\$3 billion* (PA 12-2, C-PACE enabling legislation)

Meeting these goals alone, which do not begin to consider industrial, municipal or institutional potential, could require more than *\$10 billion* in investment over the next 5-10 years, which will come from a combination of private and ratepayer capital sources. Through a combination of ratepayer incentives alongside increasing low cost and long-term private capital investment, the market for clean energy will expand and consumers will pursue deeper measures. Recognizing that ratepayer resources are limited, achieving greater uptake of measures by providing consumers with easy access to affordable capital will result in a larger impact. Attracting low cost and long-term private capital will make clean energy more accessible and affordable to consumers, resulting in greater and accelerated deployment. Federal funding support, while always welcome, has been reduced dramatically and the policy dysfunction of Washington would suggest that states not have high expectations for more funding in the years immediately ahead.



The green bank model, which works by designing and implementing innovative financing, security and collection structures, has already enabled Connecticut to use its limited ratepayer and taxpayer resources to attract more than \$200 million in private investment from local, regional and national sources. This model offers Connecticut and other states the most promise to source the capital required to achieve ambitious policy objectives and to transition (ultimately) to a sustainable clean energy marketplace driven solely by private sector financing (see Figure 2).

Figure 2. Purpose of Green Bank Financing - Towards a Sustainable Clean Energy Marketplace



Acknowledging the importance of attracting more and more private capital to help Connecticut meet its clean energy goals, DEEP established a policy to ensure that subsidized financing products aren't unfairly preventing private capital from entering the market.

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*The ratepayer-supported C&LM financing products should be positioned in the market in such a way that they do not undermine financing products offered by the private market."*

*Final Decision on the 2013-2015 C&LM Plan  
Department of Energy and Environmental Protection  
October 31, 2013*

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## Capitalization

The Connecticut Green Bank is capitalized through a number of public – state and federal – sources including ratepayers through a Systems Benefit Charge, greenhouse gas allowance proceeds, and bond and stimulus funds.

### Systems Benefit Charge

As its main source of capitalization, the Green Bank receives a 1 mill surcharge called the Clean Energy Fund from customers of Connecticut Light & Power and United Illuminating. The fund has been in existence since Connecticut deregulated its electric industry in the late 1990's. On average, the Clean Energy Fund cost households about \$10 a year and generates nearly \$30 million a year to support the programs and initiatives of the Green Bank.

### **Regional Greenhouse Gas Emission Allowance Proceeds**

The Green Bank receives a portion of Connecticut's funds from the Regional Greenhouse Gas Initiative (RGGI). As a result of regulation 22a-174-31(f)(6)(c)(ii), In fiscal year 2015, the Green Bank will receive nearly \$16 million of RGGI funds designated for energy efficiency. It will receive all of the state RGGI funds for renewable energy. In fiscal year 2016, the Green Bank will continue to receive all the RGGI funds designated for renewable energy, but not for energy efficiency under the regulatory structure. The Green Bank uses the carbon allowance proceeds from the nation's first cap and trade program to provide financing for energy improvement projects through the Commercial Property Assessed Clean Energy (C-PACE) program for commercial, industrial, non-profit, and multifamily buildings. Connecticut is the first state to use carbon emission allowance revenue as financing for C-PACE in order to (1) attract private capital investment, and (2) returning the funds back for future reinvestment to lower energy costs and improve the competitiveness of our businesses.

### **State Bond Funds**

There are various sources of state bond funds and security that have been made available to the Green Bank to support its purposes including the ability to issue bonds backed by a special capital reserve fund, loan guarantee funds, and bonding to support renewable energy and efficient energy projects. The Green Bank will begin to plan on accessing such funds and security to support the further growth and development of key programs (e.g., small business, micro grids).

### **Special Capital Reserve Fund**

The Special Capital Reserve Fund (SCRF) allows quasi-public agencies to issue bonds for self-supporting projects or programs that are backed by the State of Connecticut, lowering the cost of capital for the program – in essence, having a no-cost insurance policy. The Green Bank received \$50 million in SCRF authorization that can be placed on bonds issued for energy efficiency and clean energy programs.

### **Green Connecticut Loan Guaranty Fund**

The Green Connecticut Loan Guaranty Fund provides the Green Bank with access to \$20 million to attract lending institutions to participate in clean energy financing programs for individuals, non-profit organizations, and small businesses through a first loss credit enhancement. The program is to be designed in consultation with the ECMB and CHEFA.

### **Renewable Energy and Efficient Energy Finance Account**

The Renewable Energy and Efficient Energy Finance Account of \$18 million may support grants, investments, loans or other forms of financing assistance to clean energy projects. The program is to be designed in consultation with the DEEP, DECD, and the Office of the Treasurer and priority shall be given to projects that use major system components manufactured or assembled in Connecticut.

### **Connecticut State Treasurer's Office**

The Connecticut Green Bank will work cooperatively with the State Treasurer's Office to explore opportunities to co-invest in Connecticut projects that can deliver appropriate risk-adjusted returns for Connecticut pension assets, reduce the emissions of greenhouse gases, and contribute to job creation.

### **Federal Funds**

Alongside public funds made available through state channels, the Green Bank has access to or expects to pursue federal funds including stimulus and revolving loan funds as well as loan guarantees, in order to bring private capital to these sources.

### **American Recovery and Reinvestment Act**

The American Recovery and Reinvestment Act (ARRA) of 2009 awarded the Green Bank, and its predecessor the CCEF, \$20 million for its programs and initiatives. About \$8.25 million of those funds are currently being used as credit enhancements for the Green Bank's residential financing programs including the Smart-E Loan, Cozy Home Loan, CT Solar Loan, and CT Solar Lease. These funds have already been received and are being used to attract private capital investment in products that support the policy goals of Connecticut.

### **Clean Water State Revolving Fund**

The Clean Water State Revolving Fund (CWSRF) serves as the nation's largest water quality financing source, helping communities across the country meet the goals of the Clean Water Act. The CWSRF programs provide low interest and long-term loans for many things including water quality protection projects for wastewater treatment. Recently, a nexus has been drawn between energy and water. The Green Bank will explore with DEEP and the Treasurer's Office how the CWSRF can be leveraged to bring in more private capital for investments in key areas (e.g., food waste and sludge from waste water treatment plants to energy through anaerobic digester projects).

### **Loan Guarantee**

The U.S. Department of Energy (DOE) has established a \$4 billion renewable energy and efficient energy loan guarantee program to support innovative, renewable energy and energy efficiency projects in the U.S. that reduce, avoid or sequester greenhouse gases. From advanced grid integration and storage projects to waste to energy and efficiency improvements, the program can potentially support a unitary plan for the implementation of important clean energy projects in multiple locations throughout the state including micro grids, food waste to energy, and district heating and cooling. The Green Bank will explore with its partners the potential to access a large federal loan guarantee to develop a unitary plan that advances the energy, environment, and economic development policy objectives of Connecticut.

### **Public-Private Partnerships**

The foundation of the green bank model rests on Connecticut's achievement of a legislative and regulatory policy framework that makes it possible for financing, security and collection structures and mechanisms to be put in place in order to facilitate significant pools of private capital into the marketplace to finance a diverse array of energy efficiency and clean energy investment across all sectors. Since its formation, the Green Bank has attracted more than \$200 million in private investment from local, regional and national sources. These investments are the quintessential public private partnerships for clean energy finance. Investments such as:

- Green Bank financing in support of the largest fuel cell in North America – a 15 MW project on an old brownfield site in a distressed community using a technology manufactured in Connecticut – attracted \$65M in initial investment from Dominion Resources while creating ~150 direct jobs (i.e., manufacturing, construction, and servicing).
- A unique combination of a tax equity investor, a syndicate of debt providers and the Green Bank to create a \$60 million fund for rooftop solar PV (i.e., residential lease financing for solar PV and solar hot water systems and commercial leases/PPAs for solar PV).
- A \$5 million crowd-funded solar loan program supported by the Green Bank that will ultimately enable ordinary citizens to finance their neighbors' solar PV systems.

- A 2<sup>nd</sup> loss reserve provided by the Green Bank (using \$2.5 million of ARRA funds) to attract \$30 million of private capital for Smart-E Loans offered by nine local community banks and credit unions offering state-wide coverage. A plan for repayment of these loans on the utility bill was statutorily approved in 2013 and is presently making its way through the appropriate channels for regulatory approval.
- An offering by the Green Bank of C-PACE funded transactions that resulted in attracting \$24 million in private capital using \$6 million of Green Bank investment to fund a \$30 million portfolio of commercial, industrial, non-profit, and multifamily projects.

These partnerships with private capital are positive signs that the funds are ready, willing and able to be supplied to the clean energy marketplace in Connecticut.

### Cost of Capital

It is not sufficient for private capital to be supplied into the market for clean energy and energy efficiency investment. Capital “at any cost” will not permit the market to scale-up to levels required to enable Connecticut to achieve its policy goals. This is particularly true in Connecticut where the marketplace has become conditioned to subsidized interest rate loans, particularly for energy efficiency. To date, much success has been observed in the Green Bank’s ability to attract capital at rates that are viewed by consumers as both reasonable and affordable. The Green Bank’s Smart-E loan for homeowners is available at 5-year rates starting at 4.49% (4.24% from at least one lender). For homeowners without access to home equity financing, these rates compare quite favorably to unsecured lending rates, which frequently range from 9% to 12% or more. The C-PACE program is attracting funding at a level of approximately 300 basis points (100 basis points = 1%) over long term swap rates. An even lower rate was achieved for the debt funding associated with the leveraged solar lease fund. Crowd-funding could provide funding at even lower yields, but the potential for crowd funding is too uncertain at the present time to be relied upon as a meaningful supply of capital for clean energy projects.

### Maturity

To date, the Green Bank has been successful in attracting capital for terms that enable consumers of all types to make the desired investments in clean energy with no cash investment up front in most cases. In fact, Green Bank programs have demonstrated that lengthening the maturity of the loan can be an effective way to raise more capital for these projects. For instance, it would require a reduction in interest rate from 5% to nearly 0% to have the same impact as a one year extension in repayment terms (i.e., from 6 years to 7 years) to finance a home oil-to-gas conversion with a new boiler/furnace for about the same \$100 per month outlay. The benefits of extended terms become even more significant for financing comprehensive energy efficiency retrofits called for by the Comprehensive Energy Strategy that cost more to implement and deliver benefits to the homeowner over somewhat longer payback periods. In these cases, the 10 and 12 year maturities for the Smart-E loan and the 15 year maturity for the Solar Loan permit homeowners to become cash flow positive either throughout the life of the loan or after a modest fraction of the total loan payments have been made. With C-PACE, commercial and industrial property owners are able to finance their investments at periods extending up to 20 years, with a statutory requirement that expected energy savings exceed financing obligations levied on their property tax bill.

### **Private Investment and Leverage Ratio**

In the end, these public-private partnerships are efforts by the Green Bank to attract private investment to finance Connecticut's clean energy goals. In doing so, the Green Bank uses a diverse array of financial structures and instruments to facilitate co-investment with a host of capital providers, participating in every level of the capital stack, from equity, to subordinated debt and senior debt (i.e., earning returns that range from "concessional rates" to market rates of return). The Green Bank will also provide other credit enhancements, such as loan loss reserves, guarantees, funding warehouses, and other forms of support where such support for the sector or achieving Connecticut's policy goals is warranted. The Green Bank has no formula for the manner or level of support or credit enhancement it ultimately provides, but seeks to provide the least amount of support necessary to result in the highest possible levels of private financing for the projects concerned or to meet programmatic goals. That said, the Green Bank has been successful in leveraging ratepayer and other forms of public capital from 4:1 to 12:1. For example, the Green Bank leverages ratepayer capital in various ways through its products, including a 5:1 leverage ratio through the CT Solar Lease whereby \$10 million of ratepayer capital is used to attract \$50 million in tax equity and debt investment, yielding an 11:1 leverage ratio to support the growth and sustainability of a local residential solar PV contractor market, through the Energize CT Smart-E Loan whereby a \$2.5 million second loss reserve is attracting \$28 million of long-term and low-interest loans from local community banks and credit unions to help finance energy improvements in homes that are consistent with the Comprehensive Energy Strategy.

## Marketing

A major focus of the Green Bank is to not only attract capital to finance the clean energy goals for Connecticut, but to also *deploy* capital. Through the statewide brand of Energize Connecticut (or EnergizeCT), consumers and contractors are provided with easy access to incentives and financing. Through the Connecticut Green Bank, more and more private capital is being attracted and deployed in our state to support clean energy. Through various marketing channels including our utility partners, local lenders and contractors, on the ground community efforts, and online, more and more consumers are receiving access to cleaner, cheaper, and more reliable sources of energy. As utilities' customer engagement platforms are developed and implemented in 2015 and 2016, an abundance of data will become available and the Green Bank plans to integrate the data into its programs.

## Energize Connecticut

Energize Connecticut<sup>SM</sup> is an initiative dedicated to empowering Connecticut citizens to make smart energy choices, now and in the future. It provides Connecticut consumers, businesses and communities the resources and information they need to make it easy to save energy and build a clean energy future for everyone in the state. It is an initiative of the Connecticut Energy Efficiency Fund, the Connecticut Green Bank, the state, and the local electric and gas utilities. The Green Bank's market-facing products and programs operate under the Energize Connecticut brand. The Green Bank, in conjunction with its Energize Connecticut partners, has developed a statewide marketing plan for the brand to raise awareness as well as realizing the goal stated in the CES:

“To create a culture that understands the value of and therefore demands energy efficiency, establishes standards that enable consumers to easily ascertain the efficiency profile of their own homes or buildings, and makes financing for energy efficiency measures both easily accessible and affordable.”

For more information, go to [www.energizect.com](http://www.energizect.com)

## Connecticut Green Bank

In May of 2014 through Public Act 14-94, the Clean Energy Finance and Investment Authority (CEFIA) became the Connecticut Green Bank. As the former name of the organization was thought to be long, confusing, and difficult to pronounce, the new name needs very little explanation, has more resonance, is friendlier and is closer to the mission of the organization.

The Green Bank is guided by its knowledgeable, collaborative, helpful, and solutions-oriented people – its most important asset – by providing contractors and consumers with easy access to affordable private capital. Attracting low cost and long-term private capital will make clean energy more accessible and affordable to consumers, resulting in greater and accelerated deployment.

For more information, go to [www.ctcleanenergy.com](http://www.ctcleanenergy.com)<sup>25</sup>

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<sup>25</sup> The future website of the Connecticut Green Bank is [www.connecticutgreenbank.com](http://www.connecticutgreenbank.com)

## Channel Marketing

The Green Bank works on the ground in communities throughout the state with its channel marketing partners including the utilities, local lenders and contractors, and volunteer citizens and community-based organizations. It also engages consumers online through [www.energizect.com](http://www.energizect.com) and other campaign-based or programmatic platforms like [www.gosolarct.com](http://www.gosolarct.com), [www.solarizect.com](http://www.solarizect.com), and [www.c-pace.com](http://www.c-pace.com).

## Utility Partners

The electric (i.e., United Illuminating, Connecticut Light & Power, and Connecticut Municipal Electric Energy Cooperative) and natural gas (i.e., Connecticut Natural Gas, Southern Connecticut Gas, Yankee Gas, etc.) distribution companies are an important channel marketing partner. As administrators of the Connecticut Energy Efficiency Fund, our utility partners are helping consumers reduce their energy consumption, lower peak electric demand, and provide consumers with opportunities to access natural gas. Through the Conservation and Load Management Fund, the administrators of the CEEF are developing a customer engagement platform that can be used to target key market segments with various incentives and financing. CEFIA will work with CEEF and DEEP to share data to better inform marketing tactics to acquire customers for energy efficiency and renewable energy improvements.

## Local Lending Partners

The Green Bank partners with local lenders including credit unions, community, state, regional, and national banks. Through credit enhancements – including subordinated debt, loan loss reserves, and interest rate buy downs – the Green Bank supports local lenders in providing consumers with easy access to affordable capital. With low interest loans that have long maturities, consumers can receive immediate positive cash flow returns from their energy improvements as their energy savings exceed debt service payments.

## Local Contractors

The Green Bank supports local contractors installing clean energy systems in the residential, commercial, industrial, and institutional sectors. Contractors serving renewable energy, energy efficiency, and natural gas conversion projects – all components of the Comprehensive Energy Strategy – are supported with access to private capital sources to support the growth of their businesses through working capital, as well as easy access to affordable capital for their consumers.

## Community-Based Campaigns

Community-based campaigns provide an opportunity to engage local residents, businesses and institutions in advancing the clean energy policy goals of the state. Over the years, the Green Bank, and its predecessor the CCEF, have been involved in the creation of several community-based campaigns that are attracting foundation contributions and winning federal grants by accelerating the deployment of clean energy in communities across the state, including the Clean Energy Communities program,<sup>26</sup> Neighbor to Neighbor Energy Challenge, Solarize Connecticut, and Energize Norwich.

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<sup>26</sup> The U.S. Environmental Protection Agency and U.S. Department of Energy awarded the CCEF and SmartPower with the Green Power Pilot Award for the Connecticut Clean Energy Communities Program in 2006. Such programs were supported by contributions from the Emily Hall Tremaine Foundation, John Merck Fund, Pew Charitable Trusts, Rockefeller Brothers Fund, Surdna Foundation, and others.

### Clean Energy Communities

A joint program of the Green Bank and CEEF, the Clean Energy Communities program provides cities and towns across Connecticut with rewards for advancing the clean energy goals of the state.<sup>27</sup> There are three (3) things a city or town must do to become a Clean Energy Community:

1. Make a Commitment – make a municipal pledge to save energy in municipal buildings, voluntarily purchase clean energy, and establish a consumer-friendly marketplace for clean energy (e.g., expedient and low-cost permitting processes).
2. Take Action – fulfill the pledge by helping households, businesses and institutions to save energy and install clean energy through various incentive and financing programs.
3. Receive Rewards – earn points that can be redeemed for clean energy systems and grants for energy-saving projects.

There are currently 95 communities in the state – representing 70 percent of the population – that have joined the program.

### Solarize

Solarize Connecticut<sup>SM</sup> is a program designed to encourage the adoption of residential solar PV systems by deploying a coordinated education, marketing and outreach effort, combined with a tiered pricing structure that provides increasing savings to homeowners as more people in a community go solar.<sup>28</sup> The program, in partnership with SmartPower and the John Merck Fund, is designed based on a proven residential aggregation model to bring down the cost of solar PV when more and more residents sign-up for a pre-selected installer offering. The more residents that sign-up to install solar, the more price decreases for everyone who participates – see Table 2.

Table 2. Consumer Benefits from Solarize Connecticut within the Residential Solar Investment Program (as of May 30, 2014)

Performance Metric	Solarize	Non-Solarize	Total
# of Installations	1,117	2,500	3,617
Installed Capacity (kW)	7,980	17,739	25,719
# of Cities and Towns	31	138	169
Installed Cost (\$/kW <sub>STC</sub> )	\$3,833	\$4,662	\$4,405
Costs Saved (\$)	\$6,615,420	-	\$6,615,420

As a result of Solarize Connecticut, the “soft costs” of customer acquisition are decreased from \$300-\$600 per kilowatt installed to between \$50 to \$100 per kilowatt installed – reducing overall system costs by up to 20 percent or about \$6,000 per project. As a result of the program nine of the “Top 10” cities and towns in installed capacity, watts per capita, and penetration rate for residential solar PV participated in the Solarize program. Through a federal grant from the U.S. Department of Energy through the Solar Energy Evolution Diffusion Study (SEEDS), Yale University, New York University,

<sup>27</sup> <http://www.energizect.com/communities/programs/clean-energy-communities>

<sup>28</sup> [www.solarizect.com](http://www.solarizect.com)



SmartPower and the Green Bank are evaluating the relative performance, cost-effectiveness, scalability, and persistence of the community-based campaign model.<sup>29</sup>

The Solarize Connecticut model is being adapted beyond the geographic boundaries of cities and towns to include affinity groups such as large employers (e.g., colleges and universities) and membership-based organizations (e.g., faith and environmental groups) through programs like Solarize U.<sup>30</sup>

### **Energize**

Based on the success and adaptation of the Solarize Connecticut model for creating significant consumer demand for clean energy, the Comprehensive Energy Strategy goal to convert hundreds of thousands of households from heating oil to natural gas, and Section 52 of Public Act 13-298 “An Act Concerning Implementation of Connecticut’s Comprehensive Energy Strategy and Various Revisions to the Energy Statutes,” the Energize campaign was developed by the Green Bank, DEEP, SmartPower, and Norwich Public Utilities (NPU) to support heating oil to natural gas conversions and energy efficiency upgrades in Connecticut households.

Energize Norwich, the pilot program, was launched by the Green Bank in partnership with the Town of Norwich, NPU, SmartPower, and two local lenders – Eastern Savings Bank and Core Plus Federal Credit Union. The pilot program established a stretch target of converting 400 households to natural gas in 6 months. As a result of the strong partnership between the parties and a successful outreach campaign, the target was achieved delivering over 400 natural gas conversions in less than 6 months. The pilot program created so much consumer demand for natural gas conversions that NPU had to expand their working crews in order to handle more jobs.

The success of the Energize Norwich pilot will lead to further experimentation with NPU in the Town of Norwich and an expansion into other cities and towns across Connecticut that have expressed interest to the Green Bank in supporting a similar campaign for natural gas conversions and energy efficiency upgrades for their households.

### **Digital and Online Media**

Another important marketing channel is digital and online media. Over the past decade, much has changed with regards to providing consumers with easier, quicker, and more substantive access to information through the internet and things such as Google, Facebook, Twitter, and other online information resources. The Green Bank uses these tools to increase the level of awareness and education of consumers to help them take action to receive cleaner, cheaper, and more reliable sources of energy.

### **Customer Classifications**

In order to achieve the ambitious energy policy objectives of Connecticut, it is important to ensure that consumers are not only increasingly becoming more educated and aware of what they can do to improve their situation, but more importantly to also use public incentives and financing from private capital sources to take action and do something. Increasing consumer education and awareness by

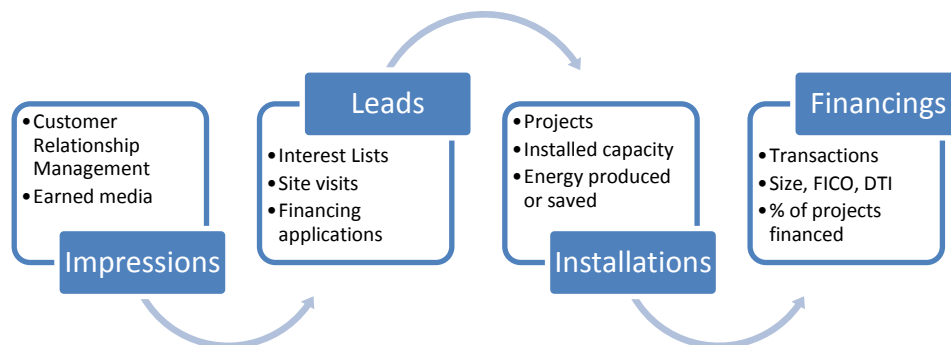
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<sup>29</sup> <http://solarizect.com/us-department-of-energy-grant-award-validates-success-of-solarize-connecticut-program/>

<sup>30</sup> <http://solarizect.com/solarize-u-announced/>

making strong impressions and generating leads will drive more consumers to install clean energy technologies and use more private capital to finance those projects – see Figure 3.

Figure 3. Customer Classifications from Awareness to Acquisition



- **Impressions** – an impression is the earliest stage of consumer education and awareness. It includes things such as earned media, website hits, event attendance and customer relationship management. Impressions are a leading indicator of consumer action.
- **Leads** –an expressed interest by a consumer in wanting to understand the opportunity further. It includes less tangible things such as signing an interest list or having a site visit or audit, to more action oriented things such as submitting an application for approval on incentives and/or financing.
- **Installations** –a clean energy project that has received approval for an incentive (e.g., Residential Solar Investment Program), in construction, or commissioned. Installations are expressed in terms of the number of consumers reached, renewable energy produced (e.g., kW installed, kWh generated), and energy saved (e.g., MMBtu’s), along with the associated societal benefits that come with those installations (e.g., GHG emission reductions, jobs).
- **Financings** –a closed loan, lease, PPA, ESA or other financing transaction where the Green Bank is repaid (versus a subsidy), including the number of transactions, size of transactions, credit scores of borrowers and the trends towards increased financing over time.

## Customer Acquisition

The Connecticut Green Bank has developed a set of customer acquisition cost metrics for its financing products and marketing initiatives that includes:

- **Acquisition Cost per Install** – determining the costs – or marketing expenditures – per installation or customer acquired. For example, a marketing budget for Solarize of \$100,000 that leads to the installation of solar PV systems on 220 homes would have an acquisition cost of about \$450 per household.

- **Market Share from Financing** – tracking over time the percentage of customers that use financing products from private capital sources with and without the Green Bank support, will help transition the market from grants, rebates, and subsidies and move towards low-cost and long-term private capital. For example, in communities that are implementing Solarize campaigns, there are a greater percentage of households that are using financing than self-funding projects – which will help the market transition away from subsidies and towards private investment in the future.
- **Acquisition Cost per Energy Unit** – determining the acquisition costs per energy unit will help the Green Bank determine how effectively its marketing resources can be allocated to generate clean energy or save energy. For example, if the acquisition costs per install for solar PV on households is \$450, and that system is expected to produce 175,000 kWh over its 25-year lifetime, then the acquisition cost per energy unit is \$0.0025/kWh.

Over time, the goal is to reduce customer acquisition costs per install, see a gradual increase in the use of financing by consumers over time as subsidies are reduced, and lowering the acquisition cost per unit of clean energy produced or energy saved – see Table 3.

Table 3. Customer Acquisition Costs – Example for Community-Based Campaigns

Customer Acquisition Costs	Acquisition Cost per Install	Market Share from Financing Trends				Acquisition Cost per Energy Unit
		Q1	Q2	Q3	Q4	
Solarize Connecticut	\$450	35%	44%	36%	8%	\$0.0025/kWh or \$0.75/MMBtu
Energize Norwich	\$225	13%	32%	24%	26%	\$1.16/MMBtu (boiler) \$0.71/MMBtu (furnace)

## Statutory and Infrastructure Sector

The Statutory and Infrastructure Sector is focused on implementing statutorily mandated programs<sup>31</sup> as well as infrastructure projects<sup>32</sup> that provide cheaper, cleaner and more reliable sources of energy while creating jobs and supporting local economic development.

### Comprehensive Energy Strategy and Integrated Resource Plan

The Statutory and Infrastructure Sector programs support the implementation of the CES and IRP. Specifically, the deployment of clean energy supports many of the strategy recommendations in Chapter 2 (i.e., Industry Sector Strategy) and Chapter 3 (i.e., Electricity Sector Strategy) of the CES that better enable Connecticut residents and businesses to take advantage of the opportunities outlined, including, but not limited to:

- Expanding access to and realizing the full potential of combined heat and power;
- Working with municipalities to expand programs and policies that drive down the cost of in-state renewable resources;
- Developing and deploying micro grids to support critical services and ensure public safety during electricity outage crises; and
- Expanding virtual net metering opportunities to promote deployment of large-scale renewable systems.

Programs such as the U.S. Department of Energy SunShot Initiative Rooftop Solar Challenge and the Anaerobic Digester and Combined Heat and Power Pilot Programs are but a few examples where the Green Bank's Statutory and Infrastructure Sector is supporting the implementation of the CES.

Recognizing that in the future the 2012 IRP estimates a shortage in renewable energy credits for Class I Renewable Portfolio Standard compliance, more in-state generation of Class I resources will help to alleviate an expectation of higher RPS policy compliance costs. Also, should there be challenges in the near future reducing peak demand in the summer and winter, the Green Bank's support of more behind-the-meter and grid-tied clean energy systems, as well as storage, will release some cost pressures as a result of increasing peak demand.

The programs of the Statutory and infrastructure Sector are intended to support the implementation of the strategies and recommendations outlined in the CES and IRP.

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<sup>31</sup> Examples of statutorily mandated programs would be, but are not limited to, Sections 103 (i.e., anaerobic digester and combined heat and power pilot programs) and Section 106 (residential solar investment program) of Public Act 11-80.

<sup>32</sup> Examples of infrastructure projects include Section 26 of Public Act 05-01 (i.e., Project 100) which resulted in the Dominion Bridgeport Fuel Cell Park or Section 127 of Public Act 11-80 (i.e., 30 MW of grid tied renewable energy projects sited in Connecticut) which resulted in Colebrook Wind.

## Conservation and Load Management Plan

The Statutory and Infrastructure Sector programs support the implementation of programs in the C&LM Plan. Specifically, the deployment of solar PV systems through the Residential Solar Investment Program (RSIP) supports several of the programs in Chapter 3 (i.e., Residential Programs) of the C&LM Plan, including:

- **Home Energy Solutions (HES)** – every residential solar PV project is required to undertake a HES assessment or an equivalent energy audit.
- **Residential Behavior Program** – every residential solar PV installation includes a real-time Wi-Fi or cellular enabled monitoring system that measures the amount of energy produced from the system. On average, these systems produce nearly 70% of the energy consumption needs of the household. The data collected from these systems is made available online and serves as a way for the homeowner to adjust their behavior in order to reduce their energy consumption to equate to the level of clean energy production.

The RSIP of the Statutory and Infrastructure Sector supports the implementation of several of the programs within the C&LM Plan intended to reduce energy consumption through weatherization and behavior-based strategies. As the current installed costs of residential solar PV continue to decline below \$4.00 per watt and the accompanying incentives from the Green Bank through the RSIP drop below \$1.00 per watt as the market transitions towards financing, clean energy will become increasingly cost-effective, delivering quicker paybacks and greater returns that can be reinvested in deeper household energy efficiency measures.

## TAM and SAM

For the Statutory and Infrastructure Sector, there are several Total Addressable Market (TAM) and Serviceable Addressable Market (SAM) scenarios with respect to residential solar PV, anaerobic digesters, and combined heat and power.

### *Residential Solar PV*

Per Public Act 11-80, the Green Bank is to structure and implement a residential solar investment program which shall result in a minimum of 30 megawatts of new residential solar photovoltaic installations located in Connecticut on or before December 31, 2022. In order to assess the market potential for residential solar PV to determine if the goal established by the legislature is achievable, the Green Bank worked with Geostellar<sup>33</sup> to use big-data geomatics to determine the technical and economic viability (i.e., TAM) and market penetration (i.e., SAM) in Connecticut (see Tables 4 and 5).

Table 4. Residential Solar PV Market in Connecticut and Penetration – By Customers

Market Definition	Market Size (# of Customers)	Current Penetration (2013)
All of Connecticut	1,609,735	0.21%
Residential Sector	1,454,651	0.24%

<sup>33</sup> [www.geostellar.com](http://www.geostellar.com)

Technically Viable Rooftops	659,312	0.52%
Economically Viable Rooftops	506,714	0.68%

Table 5. Residential Solar PV Market in Connecticut and Penetration – By Generation

Market Definition	Market Size (MWh)	Current Penetration (2013)
All of Connecticut	29,492,338	0.09%
Residential Sector	12,757,633	0.21%
Technically Viable Rooftops	6,559,940	0.41%
Economically Viable Rooftops	3,915,000	0.69%

Given the existing federal and state subsidies, according to Geostellar, more than 500,000 residential rooftops can carry solar panels that produce a net present value gain for the residences taking solar electricity off their own roofs. The potential market represents more than 40% of households in the state – and about 120 times the legislative target of 30 MW. At saturation, the total investment would be about \$12 billion and create about 70,000 to 100,000 job years within the state. Geostellar has also estimated that the size of the market will grow to 650,000 rooftops, as solar costs decline. These rooftops would generate 6,599 GWh per year, equivalent to approximately 22% of total electricity consumption in the state, satisfying the state’s Class I RPS.

#### Anaerobic Digesters

Per Public Act 11-80, the Green Bank is to set aside \$2 million a year to pilot a 3-year anaerobic digester (AD) program to provide grant, loan, or power purchase agreement support to no more than five (5) projects. The three common types of AD projects that can readily be deployed in the State are Source-Separated Organic Matter (primarily Food Waste), Waste Water Treatment Facility (WWTF) sludge and Animal Waste (Farm). Because of the availability and economics of processing feedstock (i.e., food waste, sludge and animal waste), these projects take more time than other energy projects to develop.

The available food waste market assessment was based on information taken from the DEEP State-Wide Solid Waste Composition and Characterization Study and the DEEP Food Residual Generation Mapping Study (September 2001, updated for DEEP by US EPA in Spring 2012)<sup>34</sup> identifying all Connecticut large food waste generators. Per the source-separated organics recycling legislation (Public Act 11-217, as updated by Public Act 13-285, and codified at CGS 22a-26e) large commercial food waste generators are required to bring their source-separated organic materials to a recycling facility, unless there is not a suitable facility within a 20-mile radius of the generator. Large food waste generators subject to this requirement are identified as commercial food wholesalers or distributors, industrial food manufacturers or processors, supermarkets, resorts or conference centers that each generate an average projected volume of not less than one hundred four tons per year of source-separated organic materials (SSOM). The purpose of the law is to signal to investors and prospective facilities that a large volume of feedstock is quantified and available for composting and anaerobic digestion facilities. DEEP

<sup>34</sup> Updated Mapping of Food Residual Generation in Connecticut by the Department of Energy and Environmental Protection (Spring 2012)

estimates the total food generation within Connecticut to be in excess of 320,000 tons/year, with additional tonnages of other SSOM available as well. If all the available food waste from the large generators was made available for waste to energy plants, it could support up to 9.6 MW of generation capacity.

For WWTF, the TAM and SAM are limited to the number of facilities in the State. A WWTF study assessment done by Fuss & O’Neill (F&O) for the Green Bank<sup>35</sup> identified a total of 84 WWTF throughout Connecticut. The total available market capacity of all the facilities is 551-million gallons of sludge per day (MGD). However, the serviceable market, based on F&O’s assessment of what criteria WWTF use as their guide for acceptable paybacks for capital investments (between 5 and 10 years), identifies facilities with greater than 5 MGD as required to achieve these paybacks. This leaves the serviceable market size at 102 MGD which accounts for less than 20 of the 84 total WWTF. The market size in the table reflects the serviceable market size based on installed generation capacity of up to 2.7 MW.

Data used to determine the potential market size for animal waste, primarily cow manure, was estimated using information provided by the agriculture department at the University of Connecticut. This TAM is directly correlated to the dairy cow population in Connecticut, which currently is estimated to be around 20,000. The market size below is a rough order of magnitude based on information gathered from several recent studies and case studies for farm AD applications. From these studies it is estimated that the manure from 1,000 cows can provide enough methane to support a generator capacity of 250 kW. Determining the serviceable available market is a bit tougher because 60% of Connecticut dairy farms are either 100 cows or less. In order for any of these farms to make an AD installation feasible it would require partnering and aggregating feedstock with other local farmers. There are only a handful of farms that are large enough, 800 plus cows, to even consider a small scale AD project without supplementing the feedstock with organic food waste.

Both food waste and waste sludge are dependent on the number of feedstock generators (see Table 6). The table below shows a preliminary estimate of the market by annual electricity generation for projects using the feedstock.

**Table 6. Anaerobic Digester Market in Connecticut for Food Waste, Waste Water Treatment Sludge, and Animal Waste**

Market Definition	Market Capacity (MW)	Market Size (MWh)
Food Waste (SSOM)	9.6	75,923
WWTF Sludge	2.7	21,318
Animal Waste (Farm)	TBD	35,040
<b>Total</b>	<b>12.3</b>	<b>132,281</b>

***Micro Grid Combined Heat and Power***

Per Public Act 11-80, the Green Bank is to set aside \$2 million a year to pilot a 3-year CHP program to provide grant, loan, or power purchase agreement support to no more than fifty megawatts of projects.

<sup>35</sup> Report to CEFA of Results of Anaerobic Digester Project by Fuss & O’Neill for the Connecticut Green Bank (January 21, 2014)

Given that Public Act 11-80 established two CHP programs, a pilot program administered by the Green Bank and a proscriptive program managed by DEEP, the Green Bank’s CHP pilot will concentrate on the funding of micro grid projects that can utilize a CHP installation. As funding for micro grid projects under General Statutes of Connecticut, Section 16-243y, as modified by Public Act 13-298, Section 34, does not include incentive for the generation portion of a micro grid project, the Green Bank can make better use of its CHP Pilot Program funding by supporting critical facility micro grid projects. Because this change in the use of CHP Pilot Program funding was recently decided, staff has yet to determine the TAM and SAM for the micro grid CHP market.<sup>36</sup>

The Green Bank currently has approximately \$25 million of CHP projects in the pipeline. The average installed cost of these projects fall in the range of \$2,500 to \$4,000 per kilowatt. If all the projects get built it would add 8 MW of additional installed clean energy capacity into Connecticut.

### Product or Program Overview

The Statutory and Infrastructure Sector has established the following program targets for FY 2015 (see Table 7).

Table 7. Statutory and Infrastructure Sector Fiscal Year 2015 Targets

Program	Projects	Capital Deployed	Clean Energy Deployed (MW)	Annual Clean Energy Generated and Saved (MMBtu)
RSIP	3,200	\$92,160,000	23.1	91,556
AD	5	\$90,000,000	6.8	300,849
CHP	12	\$25,000,000	8.0	383,515
<b>Total</b>	<b>3,217</b>	<b>\$207,100,000</b>	<b>37.9</b>	<b>775,920</b>

Meeting these targets would generate 137,863 MWh of clean energy (or 470,528 MMBtu’s) and save 775,921 MMBtus annually and 2,282,548 MWh of clean energy (or 2,425,316 MMBtu’s) and save 12,371,234 MMBtus over the life of the projects.

### Residential Solar Investment Program

The Residential Solar Investment Program (RSIP) requires that a minimum of 30 MW of new residential solar PV be installed in Connecticut on or before December 31, 2022, at a reasonable payback to the customer all the while developing a sustainable market for contractors. The RSIP provides to residential customers, via solar PV contractors, direct financial incentives in the form of expected performance-based buy-down incentives (EPBB) and performance-based incentives (PBI) for the purchase and/or lease of qualifying residential PV systems.

<sup>36</sup> As noted in the Comprehensive Energy Strategy, the TAM for industrial CHP – which is not a “critical facility” – is approximately 700 MW. To date, there is about 260 MW of CHP deployments (i.e. SAM), leaving about 440 MW of opportunity for investment, or over \$750 million.



### **Benchmarks**

Below are some of the Benchmarks to be used to compare the Residential Solar Investment Program with other states in the region.

**Table 8. Benchmark of Residential Solar PV Program Incentives**

<b>Benchmarks</b>	<b>CT</b>	<b>MA</b>	<b>NJ</b>	<b>NY</b>
Electric Retail Rate (\$/kWh)	\$0.1723	\$0.1477	\$0.1533	\$0.1826
Installed Cost (\$/W)	\$4.26	\$4.85	\$4.00	\$4.90
Incentive (\$/W) <sup>37</sup>	\$1.17	\$2.97	\$1.50	\$1.68
Net Cost to Customer	\$3.09	\$1.88	\$2.50	\$3.22
Payback	11	9	11	11
Average Size System (kW)	7.3	6.3	7.8	7.3
Energy Efficiency Requirement	Audit	Encouraged	No	Encouraged

### **Key Performance Indicators**

Below are the Key Performance Indicators that will be used to measure the success of the RSIP for FY 2015 against previous fiscal years.

- Number of projects submitted, approved, and completed
- Total MW (name plate)
- First year and lifetime generation (MWh)
- Installed cost (\$/W)
- Incentive (\$/W) and percent of incentive as installed cost
- Investment Tax Credit (ITC) (\$/W) and percent of ITC as installed cost
- Ratio of ITC to incentive
- Net cost to the customer (\$/W)
- Aggregate levelized cost of energy to customer (\$/kWh)
- Aggregate payback to customer
- Aggregate internal rate of return to customer

### **Anaerobic Digester and Combine Heat and Power Pilot Program**

Per Public Act 11-80 Section 103, the Green Bank is to develop a three-year pilot program for AD and CHP by setting aside \$2 million a year for each pilot for three years – for a total of \$12 million. Funds to support the pilot programs can be used as grants, power purchase agreements or loans. There are to be no more than five (5) AD projects, each no more than 3 MW in size, and no more than 50 MW of CHP projects each to not exceed 5 MW in size. Both pilot programs support projects at no more than \$450 per kW on a grant basis. The pilots commenced at the end of FY 2012 and are to be evaluated with a report submitted to the Energy and Technology Committee prior to January 1, 2015.

To date, four AD projects have been approved or are seeking approval by the staff from the Green Bank Board of Directors for a total of 5.75 MW and \$14 million in sub-debt, and three CHP projects totaling 3.7 MW and about \$1 million in grants have been commissioned with an open solicitation to provide loan or PPA financing for additional projects.

<sup>37</sup> Includes present value of all state incentives (i.e., SRECs, state tax credit, etc.)

### Benchmarks

AD using food waste and other organics is relatively new to the New England region. The Massachusetts Clean Energy Center (MassCEC) has recently awarded \$2.3 million in FY 2013 for Organic-to-Energy projects, studies, and services relating to the development of new AD facilities in an effort to divert food waste from its landfills and incinerator facilities. Of the total amount awarded, \$1.75 million was awarded in grants to develop 5 new AD facilities throughout Massachusetts and remaining funds were awarded to 12 public entities and 1 non-profit for studies and other services leading up to the development of new AD facilities.

CHP deployment is common in Connecticut and throughout the New England region. Through the MassSaves program in Massachusetts, incentives for CHP include payments for feasibility studies, procurement, and installation – projects less than 150 kW receive \$750 per kW up to \$112,000; projects greater than 150 kW and less than 2 MW receive a payment amount that is determined by the utility administrator and can be approximately 50 percent of the installed cost of a small to medium sized project; and projects greater than 2 MW receive incentives commensurate with the availability of funds.

### Key Performance Indicators

Below are the Key Performance Indicators that will be used to measure the success of the AD and CHP pilot programs for FY 2015.

- Number of projects submitted, approved and completed
- Total MW (name plate)
- First year and lifetime clean energy generation
- Amount of food waste diverted from landfills and incinerators
- Installed cost (\$/kW)
- Loan to private capital ratio
- MWh’s generated and/or saved per \$1 of ratepayer funds at risk

### Objective Function

The objective functions for the average sized project underneath each program are computed below (see Table 9).

Table 9. Objective Function for a Typical Project Under the Statutory and Infrastructure Sector Programs

Program	Lifetime Energy Generated and/or Saved (MWh’s / MMBtu)	Dollars of Ratepayer Funds at Risk (\$’s) <sup>38</sup>	Objective Function (kWh’s Generated and/or MMBtu Saved per \$1 of Ratepayer Funds at Risk)
RSIP			
▪ EPBB	187.8 / 641	\$3,838	48.9 / 0.1669
▪ PBI	187.8 / 641	\$4,949	37.9 / 0.1295
AD			

<sup>38</sup> It should be noted that both Green Bank use of grants and loans in the “dollars of ratepayer funds at risk” result in lower and higher objective functions for grants and loans respectively as more capital is required to support the financing of projects.

▪ Food Waste Only	107,000 / 768,133	\$720,000-\$4,012,984	29.6-148.6 / 0.1914-1.0668
▪ Food Waste and WWTF Sludge	193,000 / 1,460,516	\$720,000-\$3,384,000	58.8-268.1 / 0.4316-2.0285
CHP	270,000 / 2,001,240	\$630,000-\$1,260,000	214.3-428.6 / 1.5883-3.1766

## Other Areas of Strategic Importance

### *U.S. Department of Energy SunShot Initiative Rooftop Solar Challenge*

The DOE’s SunShot Initiative goal is to achieve cost reductions for solar PV systems in the United States of 75% by 2020 to enable solar electricity to be cost-competitive with other forms of energy without subsidies. As overall solar PV costs continue to decline, and as subsidies are reduced and eliminated, reduction of soft costs will continue to be critical to improvement of solar PV economics and scaling of the market.

The Green Bank has applied for and won two Rooftop Solar Challenge funding awards totaling almost \$850,000. In FY 2013, the Green Bank led a collaborative Connecticut Rooftop Solar Challenge Round I team to analyze and document soft cost reduction opportunities in Connecticut, resulting in a Final Project Report and development of recommendations to improve permitting, planning and zoning, and interconnection processes for solar PV.<sup>39</sup> In FY 2014, the Green Bank partnered with four other New England states, under the leadership of the Clean Energy States Alliance (CESA), to continue soft cost reduction efforts under the Rooftop Solar Challenge II. In this second round of the program, the Green Bank has finished development and production of a Connecticut Rooftop Solar PV Permitting Guide<sup>40</sup> which completes and packages permitting recommendations and tools developed or begun in Round I. FY 2015 activities will focus on outreach to municipalities, solar PV installers and other stakeholders to implement the Permitting Guide and achieve soft cost reductions.

The Green Bank’s Solarize program has already contributed to soft cost reductions of about 20% through customer acquisition. Efforts to streamline permitting could result in an additional 5-10% or more in soft cost reductions over the next couple fiscal years, and significantly greater in the long term, in addition to removing or reducing market barriers associated with permitting and planning and zoning processes and rules. Interconnection improvements implemented by Connecticut’s utilities would further add to soft cost reductions.

### *Micro Grid Initiative*

The Green Bank plans to develop micro grid specific financing structures in FY 2015 and 2016, centered around, but not limited to, DEEP’s activities. DEEP has released two rounds of Request for Proposals (RFP) to source micro grid projects, the second of which is due August 2014. Winners of the RFP will receive DEEP grants to cover the cost of micro grid interconnection. The Green Bank has partnered with DEEP to assist winners in both rounds access financing and transaction structuring for the generating assets of the micro grid. The Green Bank will leverage its current programs, including C-PACE, Lead by Example, and Anaerobic Digestion and CHP pilots to bring low-cost capital to these micro grid projects. At the end of the pilot period, the existing CHP program will transition into the Green Bank’s micro grid support efforts. The Green Bank has also set aside \$5 million to support micro grid projects not falling into one of these categories, which will be leveraged with private capital.

<sup>39</sup> Final Project Report is available for download at [www.energizect.com/sunrisene](http://www.energizect.com/sunrisene).

<sup>40</sup> See the Permitting Guide tab at [www.energizect.com/sunrisene](http://www.energizect.com/sunrisene).

### *Alternative Fuel Vehicle Infrastructure*

Alternative Fuel Vehicles and Infrastructure are included in the definition of “clean energy” in Public Act 11-80. Specifically, vehicles powered by “natural gas, electricity, hydrogen or propane,”<sup>41</sup> all represent savings of between 20-60%<sup>42</sup> over typical gas-powered vehicles. The Green Bank is planning to release an RFP for alternative fuel vehicle infrastructure pilot programs in FY 2015 to source innovative structures and paths to market for the financing of commercially available systems. The Green Bank does not invest in early stage companies and technologies that aren’t commercially available in the marketplace. Instead, its focus is narrow and intended to attract private investment in the scaling up of an alternative fuel vehicle infrastructure for vehicles that use clean energy. Additionally, the Green Bank plans to conduct a community-based marketing campaign pilot around residential electric vehicle purchasing in FY 2015.

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<sup>41</sup> <http://www.cga.ct.gov/2014/FC/2014HB-05117-R000335-FC.htm>

<sup>42</sup> [http://olgpropane.com/alternative\\_fuel\\_vehicle\\_conversion.html](http://olgpropane.com/alternative_fuel_vehicle_conversion.html) and <http://www.greenfleetmagazine.com/natural-gas>

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## Clean Energy Storage

Storage is reaching an inflection point in the market, moving from commercialization of technologies to deployment at scale, as evidenced by several recent developments:

- **Tesla Gigafactory:** Tesla will announce the location of its' Gigafactory to mass produce Lithium Ion batteries at the end of the year. This factory alone will result in savings of roughly 30% on Li-Ion costs, which have declined 40% since 2010.
- **Residential PV + Storage Programs:** In 2014, SunPower launched two residential pilots in California and Australia that pairs solar with storage. SolarCity has a similar pilot program in California.
- **Advances in Commercial-Scale Storage:** In 2014, STEM, a California-based storage-as-a-service company, has launched a demand response pilot linking a collection of behind the meter batteries.

Broadly, there are three potentially-economic applications for storage across all sectors:

- **Standalone revenue / savings applications** are highly dependent on a specific customer rate structure and the utility rates available in a given area, but may include: time-of-use arbitrage and demand response payments for residential and commercial customers and frequency regulation for commercial and grid-scale users.
- **Value-add for solar installation:** use of solar plus battery backup enables residential and customer users to either reduce the capital cost of their solar installation (if net metering tariffs can enable net metering with stored energy) and/or increase the potential size / coverage of solar installations without having to sell power back to the grid at a wholesale rate. For grid-scale operators, distributed generation plus storage at scale would provide a cheaper alternative than peak plants, without the intermittency inherent with wind and solar.
- **Increased resilience:** The use of distributed generation plus storage can provide a cleaner, cheaper and more reliable on-site alternative to diesel generators for commercial and residential customers. A recent report by Rocky Mountain Institute suggests that LCOE of solar plus battery is roughly \$0.4/kwh at the commercial level, competitive with diesel generators.

While there is significant momentum behind storage, challenges to scale remain such as lifetime maintenance and performance; technology improvements; economic returns; and uncertainty around interconnection process, net metering, and rate structures. California has been the biggest initial market for storage because of a self-generation incentive that provides \$1.62/W for Advanced Storage technology up to 1MW, and a step-down thereafter and a recent mandate for 1.3 GW of storage by 2020.

The Connecticut Green Bank has numerous opportunities in its residential, C-PACE and microgrid programs to incorporate storage and support bringing it to scale, creating urgency in addressing the policy and regulatory questions to deliver cleaner, cheaper and more reliable sources of energy.

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## Residential Sector

The Residential Sector is focused on deployment of residential financial products for renewable energy, natural gas conversions, and energy efficiency projects, as well as programs and platforms that support the scaled growth of those instruments in order to provide cheaper, cleaner and more reliable sources of energy while creating jobs and supporting local economic development.

### Comprehensive Energy Strategy and Integrated Resource Plan

The Residential Sector programs support the implementation of the CES and IRP. Specifically, they support the implementation of the energy efficiency, electricity, and natural gas strategy recommendations in Chapters 1, 3 and 4 of the CES.

As identified in the CES, buildings constitute 58% of the state's energy use and 87% of its electricity, with residential buildings as a whole consuming 70% more than their commercial counterparts. Due to the lack of significant residential home construction in the state, the existing opportunity for energy improvements in the residential sector is in existing housing stock, 50% of which are heated by oil, and only one-third by natural gas. Further, while 74,000 state residents have participated in the HES program through 2013 (less than 10% of eligible customers statewide), less than 10% of those who complete the HES audit go on to install deeper energy savings measures, curtailing the program's gross impact to date in the absence of a strong call to action mobilized by low-cost financing.

DEEP's 2012 Integrated Resources Plan calls for the state's electricity sector to mitigate the impact of expected increases in Class I RPS costs beginning in 2017 and the potential for increases in peak demand for both summer and winter peaks.

### Conservation and Load Management Plan

The 2013-2015 Conservation and Loan Management Plan proposes to transform the HES program to a true market-based program with a strong emphasis on leveraging private investment utilizing low-cost financing options, focusing on deep energy retrofits, and enhancing the sales and marketing of the monetary value of those energy savings. As described in the C&LM Plan, "an increasingly important component of the Department's strategy to meet the state's energy efficiency goals is using limited ratepayer and public funds to leverage private capital investment in energy efficiency." The Plan echoes the CES too noting that "the development of these financing programs is critical to moderate ratepayer costs of energy efficiency programs over time," by scaling private capital investment in clean energy, lowering the cost of borrowing, and doing more with fewer ratepayer resources.

The Residential Sector team has established ongoing collaboration with the EEB and utility staff, including the following:

- Monthly residential financing meetings with DEEP, EEB Chair, EEB consultants, electric and gas utility staff – the primary forum for aligning products, marketing, and outreach across the various residential financing options
- Quarterly reports on the Green Bank Residential Sector progress to the Residential Committee of the EEB

- Joint development of an on-bill repayment program through collaboration with the Green Bank/EEB On-Bill Repayment Working Group and the Utility Working Group.

## TAM and SAM

### Solar PV

For Solar, the TAM is calculated to be the total number of residences with rooftops viable for siting a solar array. Using a weighted average analysis of county data by Geostellar, we calculate this value as 506,714 residences (see Table 10).

Table 10. Residential Solar PV TAM in Connecticut

County	# of Residential Rooftop Sites	% Viable	# Viable Residential Rooftop Sites
Fairfield	107,883	51%	54,718
Hartford	194,144	90%	175,273
Litchfield	52,034	85%	44,468
Middlesex	34,433	87%	29,970
New Haven	161,738	85%	137,316
New London	61,093	63%	28,684
Tolland	26,423	54%	14,316
Windham	21,564	56%	11,968
<b>Total</b>	<b>659,312</b>		<b>506,714</b>

Approximately 83% of Connecticut’s residents meet the minimum credit requirements in order to qualify for Green Bank financing. Based on data from the six-month period from Nov. 1<sup>st</sup>, 2013 through April 30<sup>th</sup>, 2014 during which the Green Bank’s Residential financing products were available, approximately 18.8% of RSIP projects during that period utilized Green Bank financing, yielding a net total addressable market for Green Bank PV financings of 78,981 households. Since the launch of the Green Bank’s residential financing products in FY 2014 for PV systems (i.e., CT Solar Lease, CT Solar Loan, and Smart-E), a total of 398 systems have been financed, yielding a share of the total addressable market of 0.50% (see Table 11).

Table 11. Residential Solar PV TAM and SAM for the Green Bank Financing Products in Connecticut

Total # Viable Residential Rooftops		506,714
Fraction that Qualify for Credit Requirements	83.0%	420,572
Fraction Utilizing Green Bank Financing – TAM	18.8%	78,981
Total # of the Green Bank Financings (as of 05/16/14)		398
Share of Addressable Market – SAM		0.50%

### Natural Gas Conversions

The CES characterizes the state’s market for natural gas conversions, dividing prospective residential end-users into three classifications, Segment A, B, and C. Prospective consumers in Segment A are

comprised of residential – low use and residential – on main, while Segment B prospective consumers are comprised of residential – off main (see Table 12).

**Table 12. Estimate of the Residential Natural Gas Conversion Market in Connecticut**

Segment	Type	Prospective Consumers
A	Residential, Low Use	39,000
A	Residential, On Main	161,000
B	Residential, Off Main	51,500
<b>Total</b>		<b>251,500</b>

Given the present payback economics, the TAM is limited to Segment A, 200,000 residences in total. Providing households that seek to convert to natural gas with access to low-cost and long-term private capital will support the implementation of the CES and Natural Gas Expansion Plan. Based on Smart-E project data through May 7<sup>th</sup>, Green Bank financing has resulted in 28 natural gas conversions, or .014% of the addressable market. The Green Bank’s Smart-E financing for natural gas conversions currently competes against the gas companies’ Energize CT Heating Loan product. DEEP’s stated policy is that ratepayer-subsidized products should be positioned such that they do not undermine products backed by private capital. This is an ongoing area of focus for DEEP, the Green Bank, the utilities and EEB.

*Deeper Energy Efficiency*

The CES and the C&LM Plan both call out the need for deeper energy efficiency measures to be undertaken in Connecticut homes. The Green Bank sees an opportunity to support high efficiency heating, cooling and hot water equipment upgrades. Additionally, there is a growing focus on whole home performance as an industry in the state. There are 1.4 million residential properties in Connecticut, approximately 82% of which are low-rise single family or multi-unit (1-4), 1,148,000 in total. The Green Bank estimates that approximately 83% of homeowners are credit eligible to qualify for Green Bank energy efficiency financing. This yields a total addressable market of 952,840 credit eligible households. While industry estimates vary widely, and by type of equipment, it is estimated that on average 1% of HVAC equipment is replaced each year nationally – this includes lower efficiency models. However, using this method, the Green Bank estimates a total addressable market of 9,530 projects per year.

Based on Smart-E project data through May 7<sup>th</sup>, the Green Bank has financed 90 projects incorporating high efficiency heating, cooling or hot water equipment in its first year. Therefore, the Green Bank’s share of the total addressable market is 0.0001%, and 0.94% of the current market. The Green Bank’s Smart-E financing for deeper residential energy efficiency projects currently competes against the Connecticut Housing Investment Fund’s Residential Energy Efficiency and Energy Conservation Loan financing programs, a ratepayer-subsidized financing product. DEEP’s stated policy is that ratepayer-subsidized products should be positioned such that they do not undermine products backed by private capital. This is an ongoing area of focus for DEEP, the Green Bank, the utilities and EEB.

**Product or Program Overview**

The Residential Sector has established the following program targets for FY 2015 (see Table 13).



Table 13. Residential Sector Fiscal Year 2015 Targets

Program	Projects	Capital Deployed	Clean Energy Deployed (MW)	Annual Clean Energy Generated and Saved (MMBtu)
Smart-E	300	\$4,050,000	0.72	5,518
CT Solar Lease	390	\$14,625,000	2.81	10,919
CT Solar Loan	455	\$9,327,500	3.28	12,745
Cozy Home Loan	50	\$500,000		680
<b>Total</b>	<b>1,195</b>	<b>\$28,502,500</b>	<b>6.81</b>	<b>29,862</b>

Meeting these targets would generate 7,342 MWh of clean energy (or 25,052 MMBtu's) and save 4,809 MMBtus annually and 182,524 MWh of clean energy (or 622,798 MMBtu's) and save 68,000 MMBtus over the life of the projects.

### Energize CT Smart-E Loan

In partnership with Connecticut's community banks and credit unions, household customers are offered low-interest (between 4.49% to 6.99%) and long-term (5 to 12 year terms) financing for a range of credit quality consumers (no less than 640 FICO) through unsecured loans backed by a second loan loss reserve from the Green Bank. Financing is available for all measures that the CES supports (e.g., energy efficiency, renewable energy, natural gas conversions, alternative fuel vehicle infrastructure) as well as up to 20% of a loan can be used for healthy home measures (e.g., asbestos remediation, lead abatement) and other related improvements. The Smart-E Loan program uses \$2.8 million of repurposed ARRA-SEP funds for a second loan loss reserve and interest rate buy-downs to attract nearly \$30 million of private capital.

### Cozy Home Loan

The Cozy Home Loan program is a credit enhancement program that uses \$410,000 of repurposed ARRA-SEP funds as a loan loss reserve and interest rate buy down to attract \$2.5 million of private capital from Community Development Financial Institutions (i.e. Opportunity Finance Network). The product, administered by the Housing Development Fund, provides 10-year loans for technologies that are consistent with the goals of the Comprehensive Energy Strategy to households below 80% of area median income in the Fairfield, Litchfield, and New Haven counties.

### Energize CT Solar Loan

In partnership with a crowd-sourced fund (i.e. Mosaic) and a servicer (i.e. Sungage Financial), a 15-year solar loan product is offered to a range of credit quality consumers (no less than 680 FICO) interested in solar PV. A specialty product designed for solar PV, interest rates are affordable at 6.49% and the CT Solar Loan may re-amortize after the ITC is received by the borrower to ensure the positive cash flow of energy savings from solar PV exceeding the debt service of the loan.

### **Energize CT Solar Lease**

In partnership with state and regional banks (i.e. First Niagara Bank, Webster Bank, Liberty Bank, and Peoples United Bank), a tax equity investor (i.e. US Bank), an insurer (i.e. Assurant), and a servicer (i.e. AFC First Financial), a 20-year solar lease product is offered to a range of credit quality consumers (no less than 640 FICO) interested in solar PV and a 15-year lease product is offered for solar thermal hot water. The solar PV side of the CT Solar Lease, provides electricity at a rate that is typically 10-20% lower than the standard offer and has both fixed and variable rates.

### **Benchmarks**

The Green Bank will benchmark residential financing program progress in the following way:

- Number of projects financed
- Level of energy savings/clean energy production achieved
- Ratio of public to private capital deployed

### **Key Performance Indicators**

Below are the Key Performance Indicators that will be used to measure the success of the residential financing programs for FY 2015.

- Number of applications received
- Application approval rate
- Average FICO and DTI
- Average loan size, term and rate
- Delinquency and default rate
- Average energy savings/production per project
- Average system size (solar)
- Percent of projects with multiple measures (Smart-E)
- Number of eligible contractors
- Contractor engagement – percent of eligible contractors bringing in applications/repeat applications
- RSIP market penetration;
- Ratio of public to private capital deployed
- Successful innovation in marketing and outreach (ex: performance-based customer acquisition)

### **Objective Function**

The objective functions for the average sized project underneath each program are computed below.

Table 14. Objective Function for the Residential Sector Programs

Program	Lifetime Energy Generated and/or Saved (MWh's / MMBtu)	Dollars of Ratepayer Funds at Risk (\$'s) <sup>43</sup>	Objective Function (kWh's Generated and/or MMBtu Saved per \$1 of Ratepayer Funds at Risk)
Smart-E Loan – Solar PV	187.8 / 641	\$5,938	31.6 / 0.1079
Smart-E Loan – Bundles			
• Gas Conversion <sup>44</sup>	- / 1,165	\$844-\$3,594	- / 1.9727-0.4632
• Solar PV <sup>45</sup>	- / 2,345	\$5,783-\$8,533	- / 0.4054-0.2749
• Solar Hot Water <sup>46</sup>	- / 1,681	\$869-\$2,869	- / 1.9333-0.5857
• Windows <sup>47</sup>	- / 1,140	\$356-\$2,106	- / 3.2000-0.5412
CT Solar Loan	187.8 / 641	\$11,118	16.9 / 0.0576
CT Solar Lease – PV	187.8 / 641	\$11,036	17.0 / 0.0581
CT Solar Lease – SHWS	- / 378	\$3,568	- / 0.1060

### Other Areas of Strategic Importance

#### *On-Bill Repayment Program*

The Smart-E Loan will be the first loan product available under a new on-bill repayment program being developed jointly with the EEB and electric utilities (in June 2013, the State of Connecticut General Assembly authorized On-Bill Repayment (“OBR”) in Section 58 of Public Act 13-298, codified in Section 16a-40m of the Connecticut General Statutes). The OBR program is being developed as an open market platform that will ultimately allow multiple financing products access to repayment through the utility bill. The legislation authorizes transferability of the repayment obligation and disconnection of service (with applicable consumer protections) for non-payment of obligation. The OBR program is being developed in phases.

#### *Solar and Energy Efficiency Market Integration*

The Green Bank will be piloting a variety of strategies to encourage consumers to combine solar energy installations with energy efficiency. This will include special offers such as interest rate buy-downs for qualifying projects that combine solar and efficiency; contractor matchmaking events to encourage partnerships between solar installers and efficiency contractors; and a variety of pilot marketing strategies.

<sup>43</sup> For Smart-E Loan Bundles, the Dollars of Ratepayer Funds at risk includes CEFIA only (i.e. higher value) as well as CEFIA and CEEF rebates (i.e. lower value), resulting in a higher and lower objective function respectively.

<sup>44</sup> Gas conversion bundle includes pairing a high efficiency boiler or furnace conversion from oil to natural gas with attic and wall insulation and ductless mini-split

<sup>45</sup> Solar PV bundle includes a high efficiency boiler or furnace conversion from oil to natural gas with attic and wall insulation, and ductless mini-split

<sup>46</sup> Solar hot water bundle includes attic and wall insulation, and ductless mini-split

<sup>47</sup> Window bundle includes attic and wall insulation

## **Institutional Sector**

The Institutional Sector is focused on the development and deployment of programs that support investments in energy efficiency and renewable energy projects at state buildings as well as in municipal, university, school and hospital (MUSH) settings in order to provide cheaper, cleaner and more reliable sources of energy while creating jobs and supporting local economic development.

This sector is particularly limited in its ability to generate revenue to pay for energy projects, and often credit constrained which makes borrowing difficult. The Green Bank is focused on the development of low- or no-upfront cost financing mechanisms that use energy savings to fully finance investments in comprehensive retrofits that can address the aging infrastructure issues common to the MUSH market.

## **Comprehensive Energy Strategy and Integrated Resource Plan**

The CES seeks to deepen efficiency investments beyond simple measures such as changing out light bulbs to those that address heating and ventilation systems, insulation, and other deeper efficiency improvements. For state and municipal buildings, the CES describes Connecticut's Lead by Example program, which was created in 2011 to fund energy efficiency improvements in state and local government buildings through a standardized Energy Savings Performance Contracting (ESPC) process that enables state agencies and municipalities to implement comprehensive energy retrofits that are paid for by guaranteed future energy savings and can be structured to require no upfront capital investment. The first municipal and state participants in the performance contracting program launched projects in 2013.

The CES and IRP identify programs, policies, and strategies not only for lowering utility bills and improving the environmental performance of Institutional Sector facilities, but also for increasing their resilience and reliability for Connecticut's citizens. The Green Bank will play an important role in developing innovative finance structures that enable credit-constrained Institutional customers to borrow to meet this commitment to energy efficiency and reliability.

## **Conservation and Load Management Plan**

The increased funding for the conservation and load management programs approved by DEEP in October 2013 was designed to complement numerous other initiatives the State has undertaken to reduce energy costs in Connecticut. In the Institutional Sector, these include the development of the standardized Energy Savings Performance Contracting (ESPC) process within the Lead by Example program, third party financing programs for hospitals and acute care facilities, and education, outreach, and assistance with energy benchmarking for Connecticut schools and municipalities. In the C&LM plan, several initiatives were outlined to assist that Sector in contributing their share of the State's 20% by 2018 energy reduction goal. Increased funding in the C&LM plan included budget for a Program Manager for the Lead by Example program to accelerate the development of ESPC projects in state agencies and municipalities, enhanced training and consultation for the Lead by Example and Energy Savings Performance Contract programs, as well as increased program budgets for a number of applicable commercial and industrial (C&I) programs (Institutional Sector customers are generally eligible to participate in C&I Program offerings as applicable).

Key areas for collaboration between CEEF and the Green Bank include:

- The Lead by Example program, in which CEEF incentives for comprehensive retrofits encourage deeper efficiency measures, and the Green Bank is assisting in developing financing mechanisms or providing guidance to customers on financing options.
- Performance contracting, which is to be further supported in the C&LM plan both by increased benchmarking as an assessment tool to evaluate baseline energy use for ESPC projects, and by the provision of energy consumption data to support strategic energy management practices among municipalities and schools.
- The design of programs (e.g., positioning rebates or financing products to encourage bundling of deeper measures), and the delivery of programs (e.g. partnerships with state and local government) including the development of collateral and targeted messages, which can be supported by the increased C&LM marketing budget.

### TAM and SAM

Estimates of the Total Addressable Market (TAM) are based on known and estimated data on the number of facilities, square footage, and estimated energy expenditures. Estimates of the Serviceable Available Market (SAM) are primarily based on market penetration studies for the energy savings performance contracting industry, as a proxy for comprehensive retrofits that would be undertaken under any financing mechanism that uses energy savings to finance investments in upgraded equipment. Market potential in terms of energy and dollars are based on percentage energy savings from comprehensive retrofits applied to estimates of energy use intensity per square foot.

To calculate the Institutional sector TAM, we use data that exists on various unit measures of the MUSH market segments, including number of state buildings, population, and lists of facilities from trade associations for private colleges and schools and hospitals. However, robust square footage data varies and is not widely available. Square footage of state buildings was quantified by OPM in the most recent State Building Inventory (March 2014). Square footage estimates for municipalities are based on average per capita square footage for some known Connecticut towns and cities, extrapolated to the entire Connecticut population. While preliminary, these estimates appear to be in line with available estimates of Level of Service Standards for municipalities in other parts of the country. Estimates for square footage of hospital facilities are based on national estimates of square footage per available hospital beds. Estimates for private colleges and schools are based on average building square footage per student for some known schools in Connecticut, extrapolated to the total number of schools. This data will be refined over time (see Table .

The Green Bank's estimates of the total number of facilities and square footage of buildings in Connecticut's Institutional sector are presented in the table below. Overall, the sector is estimated to include about 300 million square feet, and at an estimated energy cost of about \$3/square foot where exact energy expenditures are unavailable, the MUSH sector in Connecticut is estimated to currently spend over \$900 million per year on energy.

Table 15. Institutional Sector TAM in Connecticut

Market Segment	#	Units	Million ft <sup>2</sup>	Estimated Annual Energy Use (million MMBtu)	Estimated Annual Energy Expenditures (million \$)
State Facilities	3,200	Buildings	60.5	9	\$200
UCONN and State Colleges	23	Campuses	29.5	4.4	\$88.5
Municipal Facilities	169	Towns	104.5	15.5	\$314
Private K-12 Schools	97	Schools	30	4.5	\$90
Private Colleges and Universities	47	Schools	82	12.3	\$246.5
Hospitals	37	Hospitals	22	5	\$66.5
Total	3,550		300	46.6	\$917

Lawrence Berkeley National Laboratory (September 2013) issued a report on the current size and remaining market potential of the U.S. energy service company (ESCO) industry. Data on market penetration was obtained from surveys of ESCO companies. Median values of market penetration (as a percentage of total floor area) that were reported for the Northeast are presented below. This data supports the Green Bank’s assessment that traditional performance contracting, with associated debt commitments for bond or lease financing commonly used, has been most successful to the segments of the MUSH sector with good credit (i.e. state and local facilities including K-12 schools). The development of an off-credit financing structure, described in the program section below, will be necessary to unlock the market potential of those portions of the MUSH sector that are more credit constrained (i.e. hospitals, private colleges/universities and private schools).

Market Segment	Median Estimate of ESCO Market Penetration Since 2003 (% of total market floor area)
K-12 Schools	45%
State and Local	39%
Universities and Colleges	25%
Health and Hospitals	10%

For purposes of estimating SAM, we assume that K-12 schools represent mostly public schools which were included in the TAM under the municipal facilities market segment. Further, we know that the standardized ESPC program in Connecticut was only recently developed, and that state facilities in Connecticut, including public colleges and universities, have not used performance contracting since 2003. Therefore, we have adapted LBNL’s estimates of the market opportunity to estimate the SAM, based on square footage. To estimate the market potential in terms of lifetime MMBtu saved, we have assumed a 25% reduction in energy consumption over 15 years (see Table 16).

Table 16. Institutional Sector SAM in Connecticut

Market Segment	Estimated TAM (million ft <sup>2</sup> )	Estimated Market Penetration	Estimated SAM (million ft <sup>2</sup> )	Estimated Lifetime Savings (million MMBtu)
State Facilities	60.5	0%	60.5	34
Municipal Facilities	104.5	43%	59.5	59
Private K-12 Schools	30	25%	22.5	17
Private Higher Education	82	25%	61.5	46
Hospitals	22	10%	19.8	19
<b>Total</b>	<b>300</b>		<b>224</b>	<b>175</b>

## Product or Program Overview

The Institutional Sector has established the following program targets for FY 2015 (see Table 17).

Table 17. Institutional Sector Fiscal Year 2015 Targets

Program	Projects	Capital Deployed	Clean Energy Deployed (MW)	Annual Clean Energy Produced and Saved (MMBtu)
Lead By Example – State	7	\$125,000,000	-	266,668
Lead By Example – Municipal	6	\$25,000,000	-	166,667
Institutional Off Credit ESA	2	\$10,000,000	-	66,668
CT Solar Lease	10	\$6,000,000	2.0	8,370
Winn-LISC MF Open Market ESCO	5	\$2,000,000	0.5	2,093
<b>Total</b>	<b>30</b>	<b>\$168,000,000</b>	<b>2.5</b>	<b>510,466</b>

For the primarily energy efficiency driven programs, including the Lead By Example and Off Credit Energy Savings Agreement (ESA) programs, meeting these targets would save 500,000 MMBtus annually and 7,500,000 MMBtus over the life of the projects. For the primarily clean energy focused programs, including the CT Solar Lease and Open Market ESCO programs, meeting these targets would generate 3,000 MWh of clean energy annually, and 76,500 MWh of clean energy over the life of the projects.

### Lead by Example – State and Municipal Facilities

The State of Connecticut created a standardized ESPC Program for use by state agencies and municipalities, as required by Connecticut General Statutes 16a-37x. The program is intended to help state and municipal governments implement a portfolio of comprehensive energy savings measures with no upfront capital. The costs of the energy retrofits are paid for by guaranteed future savings from utility and maintenance budgets. ESPC projects will be implemented by qualified Energy Service Companies (QESPs) that are on contract with the State of Connecticut. In addition, project hosts will receive technical support from a pool of pre-qualified professional energy

The Green Bank participates in the implementation of the State’s ESPC program by assistance and support with outreach and education about the state ESPC program as well as providing guidance to the state and municipalities on financing

### **CT Solar Lease**

As discussed above, in the residential sector, the Green Bank has established the CT Solar Lease program, in partnership with state and regional banks, a tax equity investor, an insurer, and a servicer. Though primarily intended for residential customers, a portion of the Solar Lease facility has also been reserved for municipal or institutional projects, where it is offered as a 20-year power purchase agreement which enables the third-party owner of the PV system to access federal tax credits.

### **Institutional Off-Credit ESA Program**

The Green Bank has previously tested an off-credit energy savings agreement (ESA) model through a \$1 million pilot program called Campus Efficiency Now; two projects were contracted at private colleges in Connecticut. In that program, loans were made to a special purpose entity (SPE) that contracted separately for the project's construction, and the sale of the energy savings. For the energy savings, the SPE entered into an ESA with the project host to pay for the energy saved at a rate discounted from the host's retail utility rates, creating immediate savings for the host while assigning the performance risk and debt obligation to the SPE. Because it does not create a long term debt obligation for the host, these types of projects can be treated as an off-balance sheet and off-credit ownership and financing approach, which, as discussed above, is critical for credit constrained segments of the Institutional sector such as hospitals and private education facilities.

Seeking to expand on the Campus Efficiency Now pilot to enable both more and larger projects, the Green Bank intends to create or facilitate an off-credit ESA model for financing clean energy projects with private capital or through non-taxpayer supported bonds. Such a model has been tested in the State of Maryland by the Maryland Clean Energy Center (MCEC), which, like the Green Bank, has bonding authority.

The Green Bank believes the off-credit ESA model is replicable in Connecticut, and the Green Bank will be able to utilize this model to raise financing for Institutional sector projects such as hospitals, private colleges/universities, or independent schools; it may also be a viable financing mechanism for state or municipal ESPC projects in addition to some commercial projects that are unable to utilize C-PACE.

### **Winn-LISC Open Market ESCO**

In the fall of 2011, Winn Development applied for and was awarded a \$5.25 million grant from HUD, with a letter of support from the Green Bank, to pilot an innovative energy efficiency loan fund designed to facilitate energy savings agreements (ESAs) in the multifamily low-income housing developments. The program operates in Connecticut, Massachusetts and New York.

The Green Bank has supported Winn through the program development process and, in August 2013, the Green Bank executed a *Master Credit Enhancement and Participation Agreement*, committing up to \$1.87MM for Connecticut projects financed through this program.

Unfortunately, Winn has not made hoped-for progress in selling the program and closing loans because of structural issues with the financing that are not attractive to owners. The Winn team is pursuing an extension of the program with HUD, through FY2015, and currently believes that the program may be best suited to the implementation of solar PV. The Green Bank will continue to support Winn as they work to identify projects that can be successful.

### **Benchmarks**

The Green Bank will benchmark Institutional sector program financing in the following way:



- Number of projects financed
- MW installed, average system size, and annual and lifetime MWh produced
- Ratio of public to private capital deployed
- Project square footage
- Total project investments (\$)
- Project investments per capita
- Project investments per square foot
- Job years created
- Time from project conception to contracting

### ***Key Performance Indicators***

The Green Bank will track the following indicators of performance:

- Avoided greenhouse gas emissions
- Job years created
- Ratio of public to private capital deployed
- Delinquency and default rate
- Average energy production per project
- Percentage reductions in energy consumption
- Annual and lifetime MMBtu saved
- MW clean energy installed, average system size, and annual and lifetime MWh produced, where clean energy generation is installed
- Ratepayer funds expended (utility incentives or other)
- Number of applications received and approved
- Number of applications awarded ZRECs
- Number of applications that proceed to construction
- Average PV system size
- Delinquency and default rate
- Contractor engagement – percent of eligible contractors bringing in applications/repeat applications
- Outreach and education – number of institutions attending presentations

### **Objective Function**

The objective functions for the average sized project underneath each program are computed below (see Table 18). Objective functions for the LBE and Institutional ESA programs are very high because it is assumed that the Green Bank is playing primarily a facilitative role, and that no further credit enhancement will be necessary for these projects. Therefore, ratepayer funds are limited to program administrative costs (i.e. salaries).

**Table 18. Objective Function for the Institutional Sector Programs**

Program	Lifetime Energy Generated and/or Saved (MWh's / MMBtu)	Dollars of Ratepayer Funds at Risk (\$'s)	(kWh's Generated and/or MMBtu Saved per \$1 of Ratepayer Funds at Risk)
CT Solar Lease <sup>48</sup>	2,683 / 9,153	\$89,143	30.1 / 0.1027

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<sup>48</sup> Sample 100 kW project

## Commercial and Industrial Sector

The Commercial and Industrial Sector is focused on the implementation of commercial and industrial property assessed clean energy (C-PACE) in order to provide cheaper, cleaner and more reliable sources of energy while creating jobs and supporting local economic development.

### Comprehensive Energy Strategy and Integrated Resource Plan

The CES relies heavily on C-PACE financing to accomplish its goals for the C&I sector in Connecticut. The Executive Summary of the CES notes the goal to: “Leverage private capital through innovative financing mechanisms including Connecticut’s first-in-the-nation Green Bank (the Clean Energy Finance and Investment Authority), standardized energy efficiency performance contracts, and the state’s new Commercial Property-Assessed Clean Energy (C-PACE) program.”

- In addition to referencing C-PACE financing as a way to meet the state’s goals in the C&I sector around energy efficiency, the CES also notes several policy goals that would ramp up demand for C-PACE financing such as decoupling, benchmarking and energy efficiency standards.
- Throughout the CES, there is an expanded commitment to “all cost effective” and a goal of going deeper with energy efficiency is mentioned. C-PACE enables these deeper projects, with the average C-PACE project becoming 45 to 55% more efficient.
- The CES notes that the development of financing programs is critical to moderate ratepayer costs of energy efficiency programs over time. To that end, the Green Bank is working closely with the EEB to optimize incentives and ensure that the rebates and incentives are leading customers to do larger projects, possibly financed by C-PACE.

The CES has been of great benefit to the Green Bank in its research on the building composition in Connecticut. According to the CES, residential and commercial buildings are the largest users of energy in Connecticut, collectively accounting for 58% of the State’s energy usage and 87% of its electricity usage annually. In a business-as-usual scenario (which assumes modest energy efficiency savings per year), consumption is projected to grow to 550 trillion British Thermal Units per year in 2050, nearly 20% higher than today’s energy use of approximately 468 trillion BTUs. While buildings in Connecticut vary in their ownership and size, commercial and residential buildings consume energy in very similar ways. Over 60% of the energy used in buildings is for heating and cooling. The next highest uses are water heating in residential buildings and lighting in commercial buildings, representing about 15% of energy usage in each respective building type. Of the primary energy (that is, energy produced from raw fuels or otherwise found in nature) used by buildings today, 59% comes from electricity, 21% from oil, and 20% from natural gas. Electricity and natural gas use has increased while oil and biomass consumption has declined. Another common feature across building types is the prevalence of existing building stock (as opposed to new construction).

This data, coupled with data the Green Bank commissioned about the location, size and class of buildings in Connecticut from HR&A Associates, a leading real estate advisory firm, is important in determining our goals for this sector.

## Conservation and Load Management Plan

Among the many goals outlined in the C&LM plan, there are several that impact the C&I sector and The Green Bank's C-PACE program. Indeed, it is noted that the companies should coordinate with the Green Bank on C-PACE financing. That coordination has been ongoing and fruitful.

- The focus on promoting deeper upgrades by aligning incentives to reward comprehensive projects is also a place of overlap.
- The focus on marketing in the C&LM plan is consistent with the Green Bank's goals of increasing volume for its financing products. During 2015 the Green Bank will integrate customer segmentation efforts and data driven analytics to increase market penetration in targeted Residential and C&I areas.
- As noted in the C&LM plan, the Companies will continue their efforts to leverage CEEF funds through promotion and enhancement of CEEF financing offerings, coordination with partners' complementary programs (CPACE, LBE-ESPC) in an effort to reduce financing costs, etc. We have seen many building owners go deeper with their projects when combining incentives with C-PACE financing. In fact, several projects meet the Savings to Investment Ratio (SIR) criteria of C-PACE due to utility incentives.
- C-PACE's ongoing collaboration with C&I Committee of the EEB includes the following:
  - Monthly meetings with United Illuminating and Northeast Utilities
  - Regular sharing of deal flow information
  - Joint outreach efforts and marketing
  - Streamlined approvals of C-PACE applications with EEB incentives.

## TAM and SAM

The Total Addressable Market (TAM) for the C-PACE program is approximately 83% of Rentable Building Area (RBA) in Connecticut and the Share of Addressable Market (SAM) is approximately 0.2%.<sup>49</sup>

We calculate TAM as the total square feet of RBA for Commercial & Industrial buildings within C-PACE municipalities divided by the total square feet of RBA for all Commercial & Industrial buildings in the state of Connecticut. We calculate SAM as the total square feet of RBA for all closed C-PACE projects divided by the total square feet of RBA for all Commercial & Industrial buildings in C-PACE municipalities.

The TAM calculation shows that the program has secured over 4/5 of the commercial and industrial building stock in the state of Connecticut as eligible applicants for C-PACE, an impressive statistic for the

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<sup>49</sup> HR&A CT Building Data 2013

program’s first year of existence. The SAM calculation demonstrates that completed C-PACE projects account for roughly 0.2% of all Commercial & Industrial building area in C-PACE eligible municipalities, an equally important metric for the program.

Commercial Facilities

TAM for Commercial buildings is approximately 84%. SAM for Commercial buildings is approximately 0.5%.<sup>50</sup>

Industrial Facilities

TAM for Industrial buildings is approximately 77%. SAM for Industrial buildings is approximately 0.01%.<sup>51</sup>

**Product or Program Overview**

The Commercial and Industrial Sector has established the following program targets for FY 2015 (see Table 19).

Table 19. Commercial & Industrial Sector Fiscal Year 2015 Targets

Program	Projects	Capital Deployed	Clean Energy Deployed (MW)	Annual Clean Energy Generated and Saved (MWh / MMBtu)
C-PACE	63	\$50,000,000	8.8	114,517

Meeting these targets would generate 10,000 MWh of clean energy (or 34,121 MMBtu’s) and save 80,395 MMBtus annually and 244,000 MWh of clean energy (or 818,913 MMBtu’s) and save over 2,000,000 MMBtus over the life of the projects.

**Commercial and Industrial Property Assessed Clean Energy (C-PACE)**

In January 2013, the Green Bank introduced the C-PACE program. C-PACE is one of the country’s first statewide programs to provide 100 percent upfront financing for energy upgrades to commercial, industrial and nonprofit buildings. Under this program, property owners obtain financing needed to make key energy improvements, and then repay it as a benefit assessment charge on their property tax bill. Because the payments can be spread over a period of up to 20 years, owners save on energy costs immediately and for years to come. The financed improvements increase the building’s value, while preserving the building owner’s capital and credit lines for core investments.

C-PACE financing is available for a wide range of clean energy and energy efficiency improvements, including new boilers and chillers, upgraded insulation, new windows or solar installations. Energy audits and construction costs can also be financed through C-PACE.

<sup>50</sup> *Ibid.*

<sup>51</sup> *Ibid.*

C-PACE has been a notable success in deploying clean energy throughout the state. Eighty Connecticut municipalities, together accounting for 83 percent of the state's commercial and industrial building stock, have signed onto the program. Since launching C-PACE, the Green Bank has approved 30 projects totaling \$23 million all financed with a \$40 million warehouse facility using the Green Bank's balance sheet. This has resulted in the deployment of 3.7 MW of clean energy and will lead to an estimated 160 million kWh in electric savings and over 320 million MMBTU in fuel savings over the lifetime of the projects. Total savings in avoided electric and fuel costs will exceed \$38M in aggregate for the benefited property owners.

Working with its group of qualified capital providers, the Green Bank auctioned its first group of transactions and secured private capital to purchase the initial \$30 million portfolio of transactions that the Green Bank has and will originate. This has allowed the Green Bank to replenish its funding warehouse facility and leverage its resources at a ratio of 4:1 with the potential to achieve a leverage ratio of 9:1 through a subsequent financing round.

### ***Benchmarks***

Because there are several other states operating PACE programs, it is useful for the Green Bank to benchmark ourselves against the rest of the country. We will benchmark our progress in the following way:

- Number of projects completed
- Level of energy savings achieved
- Ratio of public to private capital deployed

We will benchmark ourselves against the best C-PACE programs in the country, including California, Florida, Michigan, New York, and Ohio.

### ***Key Performance Indicators***

Throughout the year, we will continually monitor the performance of the C-PACE program based on the following indicators:

- Number of applications coming in;
- Number of C-PACE towns opting into;
- Speed of approval process for applications;
- Size of the project and level of energy savings;
- Ratio of public to private capital deployed
- Growth into new markets (ex: multifamily)
- Successful innovation in marketing and outreach (ex: relationship managers)
- Number of trained contractors
- Number of new contractors bringing in applications
- Number of jobs created and environmental emissions reduced
- Amount of dollars saved by building owners using C-PACE financing

## Objective Function

The objective functions for the average sized project underneath each program are computed below (see Table 20).

Table 20. Objective Function for the Commercial and Industrial Sector Programs

Program	Lifetime Energy Generated and/or Saved (MWh's / MMBtu)	Dollars of Ratepayer Funds at Risk (\$'s) <sup>52</sup>	Objective Function (kWh's Generated and/or MMBtu Saved per \$1 of Ratepayer Funds at Risk)
C-PACE – Solar PV			
• Small <sup>53</sup>	64,703	\$29,000	52.5 / 0.1795
• Medium <sup>54</sup>	151,424	\$95,600	37.5 / 0.1275
• Large <sup>55</sup>	1,290,076	\$500,595	60.5 / 0.2070
C-PACE – EE <sup>56</sup>	138,307	\$358,169	- / 0.3862
C-PACE – EEPV <sup>57</sup>	80,150	\$507,153	- / 0.1580
C-PACE – CHP <sup>58</sup>	9,295	\$74,493	- / 0.1250
CT Solar Lease	2,683 / 9,153	\$89,143	30.1 / 0.1027

## Other Areas of Strategic Importance

### *Small Business Energy Advantage (SBEA)*

While C-PACE is a tool that works for many building owners in the C&I sector, due to the rigor of the review process it is not a financing option well-suited for very small projects. The C&I Program will be working with the EEB to determine how the Green Bank should work with this sector in FY 2015.

### *Non-C-PACE Commercial Financing Product*

In addition to C-PACE, the C&I program will engage a consultant to consider other financial offerings in the C&I market. For example, C-PACE does not work for condominiums and we would like to be sure that market is covered with an offering from the Green Bank. Also, we are learning that some borrowers like the idea of an off-balance sheet offering, so we will explore an Energy Services Agreement (ESA) model.

<sup>52</sup> Principal value of the C-PACE loans held by CEFIA after the sell down of 80% of the value of the transaction to a private capital investor.

<sup>53</sup> 55 kW small ZREC project

<sup>54</sup> 157 kW medium ZREC project

<sup>55</sup> 954 kW large ZREC project

<sup>56</sup> 290 Pratt Street in Meriden, CT

<sup>57</sup> 100 Roscommon in Middletown, CT

<sup>58</sup> YMCA in Meriden, CT

## Multifamily Market Rate and Affordable Housing

The Green Bank is developing several multifamily and affordable housing (MFAH) programs, which is a new area of program development and a priority for the Green Bank. The Green Bank has established working relationships with key channel partners to begin sourcing transactions utilizing a variety of financing options.

Implementing energy improvements in the MFAH market has been difficult to achieve, both in Connecticut and nationally, because of challenges related to securing financing, split incentives between owners and tenants, lack of reliable performance data and case studies to build investor confidence, as well as various other challenges. Therefore, a key tenet of the Green Bank's MFAH strategy has been to identify and bring in national leaders, from within and outside Connecticut, with demonstrated ability to "crack the multifamily housing nut" and successfully build and close transactions and run programs. The Green Bank has several strong partnerships in place, each with nationally recognized MFAH experts on their teams, and who are bringing resources to Connecticut to build the market – attracted by the cutting edge clean energy leadership and activities underway in Connecticut.

As with all Green Bank programs, our approach is to use the minimum level of Green Bank funds necessary to support the market, and then to reduce the Green Bank's participation over time as the market takes off and the private sector takes over. The Green Bank has four major multifamily affordable housing initiatives:

1. *Building the Multifamily Market through C-PACE*
2. *Building the Multifamily Market through Community Development Financial Institution's (CDFI) and Strategic Partners*
3. *WINN-HUD open market ESCO*
4. *CT Housing Finance Authority Partnership*

Additionally, the Green Bank will be developing market rate multifamily financing options, with an initial focus on condominium financing to support natural gas conversions in communities where the gas companies are focused on low use and/or line expansion (although any financing developed will support the full range of clean energy measures).

## Background

Connecticut's Multifamily and Affordable Housing (MFAH) sector presents a critical imperative and significant opportunity for investment in clean energy improvements, with a priority focus on affordable housing, and targeted to:

- Reduce energy costs for residents as well as energy and energy-related maintenance costs for building owners,
- Fund all cost effective energy measures, within the context of a building's lifetime capital improvement plan, including energy related capital improvements, and
- Improve the safety, health and comfort of low income residents.



This MFAH opportunity sits at the nexus of priorities established by the CES, [Governor Malloy's Commitment to Affordable Housing](#) including more than \$360 million for State funded affordable housing projects for seniors, working families, young professionals and other residents, and [the Green Bank's Comprehensive Plan](#). It includes an important partnership with the CT Housing Finance Authority (CHFA), which finances approximately 45% of the State's affordable, multifamily units<sup>59</sup> and has a [stated policy](#) to require cost effective energy efficiency measures in all multifamily developments as well as support for the use of renewable and alternative energy.

The Green Bank's multifamily initiative began with a review of the MFAH sector to identify priority opportunities and challenges as well as holding exploratory meetings to establish relationships with sector leaders and key stakeholders including: CHFA, U.S. Department of Housing and Urban Development (HUD), CT based Community Development Financial Institutions (CDFI's), Utilities (CL&P and UI), CT Housing Coalition, Community Action Councils, CT Department of Public Health (DPH), Operation Fuel, and various private and non-profit housing developers. The Green Bank's overarching strategy in building deployment capacity in the multifamily affordable housing sector is to identify and fill gaps and leverage Green Bank resources by supporting and partnering with organizations identified with a demonstrated track record of success both in Connecticut and nationally.

## Market Opportunity

Deployment of cost effective energy efficiency and renewable energy improvements in multifamily housing is sorely lacking in Connecticut (and nationally) and presents significant opportunity for investment. The Green Bank estimates, conservatively, that potential annual utility cost savings for the multi-family housing sector is on the order of \$125 million per year<sup>60</sup>.

Much of this housing stock was built before 1970 and now faces significant needs for energy updates and other capital improvements. Approximately 45% of multifamily housing units in Connecticut are located in properties with 20 or more units, which are predominantly concentrated in the State's largest cities (Bridgeport, Hartford, New Haven, Stamford, Waterbury), as well as located near existing or planned natural gas lines. Many are heated by oil furnaces and electrical heating systems, offering significant opportunity for fuel conversion to natural gas as well as other clean energy measures.

***The "Fuel Poverty" Imperative.*** Home energy bills present a significant financial burden to low-income residents in Connecticut, where about one in five households cannot afford to pay their energy bills. These findings are based on a [study recently commissioned by Operation Fuel](#). The annual home energy affordability gap currently is about \$700 million for more than 295,000 Connecticut households with

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<sup>59</sup> Over the past 40 years, CHFA has provided financing for the acquisition, construction and/or rehabilitation of more than 35,800 units of affordable rental housing for families and the elderly across Connecticut.

<sup>60</sup> This number assumes approximately 250,000 units in multi-family buildings (defined as buildings with 5 or more units) with potential to reduce average annual utility costs on the order of about \$500/unit).

incomes at or below 200 percent of the Federal Poverty Level. This means that the average low-income household owes about \$2,363 more in energy bills than it can afford to pay<sup>61</sup>.

The primary source of energy assistance for Connecticut's lower-income households is the [federal \*Low-Income Home Energy Assistance Program \(LIHEAP\)\*](#). With a CT state allocation of about \$76 million, LIHEAP covers less than 11 percent of the state's home energy affordability gap. As a result, Connecticut's lower-income families and elderly residents must often choose between energy, food and other basic necessities and look to organizations such as Operation Fuel for energy assistance.

## Initiatives

The Green Bank's overall market development approach responds to the key gaps and challenges identified above and, with several strategic partners, are supporting the following initiatives:

1. ***C-PACE multifamily loans***, made on the basis of projected energy cost savings, and secured by a public benefit assessment and lien on the property. C-PACE projects will include CHFA financed properties as well as market rate multifamily rental properties that can secure the lender consent required for C-PACE financing. Properties are anticipated to contain 100 units or more, given the project size needed to make C-PACE economics work. The Green Bank secured Urban Ingenuity as its C-PACE multifamily housing partner who will be responsible for sourcing C-PACE multifamily transactions, providing technical assistance to owners in developing and submitting applications, and structuring and financing C-PACE eligible energy upgrades.
2. ***Unsecured multifamily loans***, made on the basis of projected energy cost savings, with credit enhancements from the Green Bank, predominantly anticipated to consist of loan loss reserves. Given the programmatic and financial barriers described above, many MFAH properties, especially those with existing HUD or Federal Housing Administration (FHA) financing or insurance, are banned from securing the lender consent required for C-PACE financing and, in most cases, can take on unsecured debt only. This category includes HUD funded public housing, all FHA and HUD funded or insured properties, as well as many of the underserved 3- to 6-unit buildings in our large cities, which are often over 100 years old, and in great need of energy and other capital improvements. The Green Bank has supported the establishment of the Multifamily Permanent Energy Loan Program with the Connecticut Housing Investment Fund, focused specifically on affordable multifamily. The Green Bank is providing a \$300,000 loan loss reserve and an initial \$1MM capitalization.
3. ***WINN-HUD Open Market ESCO***, in the fall of 2011, WINN Development applied for and was awarded a \$5.25 million grant from HUD, with a letter of support from the Green Bank, to pilot an innovative energy efficiency program designed to serve multifamily low-income housing developments. This HUD innovation initiative was established to facilitate "game-changing" solutions to effective investment of private capital to improve the energy efficiency of low-income multifamily housing. The WINN proposal – *Multifamily Energy Loan Fund* – created a loan fund to

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<sup>61</sup> The Affordability Gap measures the dollar amount by which actual home energy bills exceed affordable home energy bills. If a Connecticut household has an annual income of \$12,000 and an annual home energy bill of \$3,000, that household has a home energy burden of 25% ( $\$3,000 / \$12,000 = 0.25$ ). An *affordable* home energy burden is set at 6% of annual income.

facilitate energy savings agreements (ESA) in the multifamily (40-300 units) housing market. The program operates in Connecticut, Massachusetts and New York. The Green Bank has supported WINN through the program development process and, in August 2013, the Green Bank executed a *Master Credit Enhancement and Participation Agreement*, committing up to \$1.87MM for Connecticut projects financed through this program.

4. **CHFA Pilots**, in 2013 the Green Bank and CHFA signed a Memorandum of Agreement (MOA) that recognized the importance and benefits of cooperation between the two organizations in accelerating the implementation of energy efficiency and renewable energy improvements for owners and tenants of affordable multifamily rental housing. To this end, and in an effort to streamline and coordinate program offerings, the Green Bank and CHFA continue to collaborate and share information related to proposed loan programs and funding availability, respective project pipelines, as well as energy monitoring and verification (EM&V) initiatives and requirements. CHFA and the Green Bank are collaborating on a pilot initiative to help inform multifamily EM&V and underwriting requirements. The pilot will be undertaken on five (5) master-metered properties previously identified by CHFA. The Pilot process includes, for each property, energy benchmarking and auditing, definition of project scope to include all cost effective energy measures, financing, implementation, commissioning, and post project energy performance monitoring and verification. Work will be carried out by the Green Bank's C-PACE and multifamily housing technical advisors, with oversight from the Green Bank's MFAH and C-PACE teams. The implementation of energy improvements for all 5 properties is anticipated to take about 1 year, with 3 years of energy monitoring post commissioning.
5. **Credit Enhancement RFP** – The Green Bank has \$4MM allocated to an open RFP for credit enhancements to support project or program level multifamily financing, with a focus on the affordable market.

### ***MFAH Strategic Partners***

As the Green Bank's MFAH Technical Assistance Partner, the team of [New Ecology](#) and [CNT Energy](#) will be recommended to multifamily property owners as a trusted energy advisor and owner's agent to help navigate the energy improvement process including: benchmarking, auditing, scoping, financing, implementing, commissioning and post-completion monitoring. [New Ecology](#) and [CNT Energy](#) are both nationally recognized leaders in building and operating successful MFAH energy improvement programs. They have been funded by the [JPB Foundation](#) of NY, focused on poverty alleviation, to develop the *National Delivery Network for Energy-Efficiency Services to Multifamily Affordable Housing Owners*. Connecticut has been strategically identified as one of their first locations, where this team has opened and staffed an office and will invest approximately \$1,000,000 (\$500,000 cash/ \$500,000 in-kind) to help build the market.

### ***MFAH Channel Partners***

We have identified the following organizations as key channels partners for building the Green Bank's MFAH pipeline, and have begun to establish working relationships with each. CHFA, in particular, is a critical partner, with whom the Green Bank has been working closely on all our MFAH initiatives, including program development and sourcing deals.

- Connecticut Housing Finance Authority (CHFA)
- Connecticut Housing Coalition
- Community Action Councils
- Community Development Financial Institutions (CDFI's)
- Federal Department of Housing and Urban Development (HUD)
- Large multifamily property owners and developers, both private and non-profit
- Public Housing Authorities, both state and federally financed
- Utility companies CL&P and UI, including properties deferred from weatherization and other energy improvements due to health and safety hazards

### **New Initiatives**

The Green Bank will be developing market rate financing programs with an initial focus on the condominium market. Condominiums are a prime target for natural gas conversions, particularly in communities that have previously been identified by the gas companies as having a large concentration of housing units on main with low use, and/or targeted for expansion of gas lines. The Green Bank's strategy will be to work with lenders active in the condo financing market and develop products that leverage the Green Bank's credit enhancements and encourage lenders to finance clean energy projects. The Green Bank will look to encourage lending in buildings with challenges that prevent the use of C-PACE financing, don't meet FHA guidelines, require longer maturities or more generous underwriting criteria, etc.

### **Distressed Municipalities and Equitable Distribution of Funds**

Per Section 101 of Public Act 11-80, the Green Bank is to provide an equitable share of its funding for "small and large customers with a maximum average monthly peak demand of one hundred kilowatts in census tracts in which the median income is not more than sixty percent of the state median income".

As of FY 2013 and FY 2014, the Green Bank has approved, closed, and completed funding in FY 2013 of \$20.1M and FY 2014 of \$78.7M. Of that funding, \$6.4 million and \$11.5 million was in census tracts<sup>62</sup> below sixty percent of the state median income (see Table 21), and \$7.7 million and \$19.8 million was in distressed municipalities<sup>63</sup> for FY 2013 and FY 2014 respectively (see Table 22). About 30% of the system benefit funds collected from ratepayers is from economically disadvantaged communities.

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<sup>62</sup> According to the Federal Financial Institutions Examination Council's website, there are 834 census tracts in Connecticut and 155 of those are below 60% State Household Median Income level of \$41,546.

<sup>63</sup> DECD ACS 2011 Median Income is \$69,243

**Table 21. Percentage of Green Bank Funding to Census Tracts below 60% of the State Median Income for FY 2013 and FY 2014**

<b>Funding</b>	<b>Census Tracts Below 60% of State Median Income (FY 2013)</b>	<b>Census Tracts Below 60% of State Median Income (FY 2014)</b>
Approved Funding	\$17,771	\$4,316,517
Closed Funding	\$0	\$6,363,187
Completed Funding	\$6,367,989	\$662,786
Total Below 60% SMI Funding	\$6,385,760	\$11,450,620
Total Funding	\$20,072,450	\$78,731,843
<b>% of Funding</b>	<b>32%</b>	<b>15%</b>

**Table 22. Percentage of Green Bank Funding to Distressed Municipalities for FY 2013 and FY 2014**

<b>Funding</b>	<b>Distressed Municipality Funding (FY 2013)</b>	<b>Distressed Municipality Funding (FY 2014)</b>
Approved Funding	\$123,322	\$10,351,763
Closed Funding	\$654,596	\$7,859,160
Completed Funding	\$6,914,819	\$1,601,769
Total Distressed Funding	\$7,692,738	\$19,812,692
Total Funding	\$20,072,450	\$78,731,843
<b>% of Funding</b>	<b>38%</b>	<b>25%</b>

To further invest its resources in economically disadvantaged communities, the Green Bank expects to:

- Support a portfolio of financing programs in the multifamily and affordable housing sector; and
- Continue to support targeted community-based strategies (i.e., Solarize and Energize) that promote clean energy in economically disadvantaged communities (e.g., Bridgeport and Windham).

## **FY 2015 Budget**

The fiscal year 2015 budget can be found at – [click here](#).

## FY 2015 Targets and Estimated Economic and Environmental Benefits

The FY 2015 targets established by the staff of the Green Bank are ambitious (see Table 23).

Table 23. FY 2015 Targets by Sector for the Connecticut Green Bank

Sector	Program Budget <sup>64</sup> (\$000's)	Operations Budget (\$000's)	Total Capital Deployed (\$000's)	Clean Energy Deployed (MW)	Annual Clean Energy Generation (MWh)	Annual Energy Savings (MMBtu)
Statutory and Infrastructure	\$35,900	\$3,209	\$207,100	37.2	137,863	305,393
Residential	\$9,313	\$3,629	\$28,503 <sup>65</sup>	6.8 <sup>66</sup>	7,342 <sup>67</sup>	4,809
Institutional	\$1,875	\$1,002	\$168,000	2.5	3,000	500,000
Commercial and Industrial	\$10,000	\$3,905	\$50,000	8.8	10,000	114,516

By investing \$135 million in programs and operations by the Green Bank in FY 2015 to attract and deploy nearly \$450 million of capital deploying clean energy, will result in an estimated economic development benefit of 6,856 jobs –2,634 direct and 6,856 indirect and induced (see Table 24).

Table 24. Estimated Economic and Environmental Benefits of Achieving the FY 2015 Targets

	Direct Jobs	Indirect and Induced Jobs	Total Jobs <sup>68</sup>
Statutory and Infrastructure <sup>69</sup>	920	1,473	2,393
Residential	200	321	521
Institutional	1,243	1,995	3,238
Commercial and Industrial	271	433	704
Total	2,634	4,222	6,856

CEFIA will work with the Department of Energy and Environmental Protection to create a tool, similar to the job calculator, to estimate environmental benefits such as greenhouse gas emissions resulting from clean energy production (i.e., MWh) and energy savings (i.e., MMBtu's) over the life of the projects.

<sup>64</sup> Includes all program loans, investments, credit enhancements and incentives (net of sell-off) that have targets developed

<sup>65</sup> Over 85% of the financing that occurs through the Residential Sector programs, will support the deployment of rooftop solar PV. The remaining is heavily weighted towards natural gas conversions.

<sup>66</sup> These solar PV projects are supported by the RSIP underneath the Statutory and Infrastructure Sector programs. They are simply noted here, but don't count towards the total.

<sup>67</sup> Ibid

<sup>68</sup> These job estimates are based on multipliers determined as a result of work performed by Navigant Consulting for the *Connecticut Renewable Energy and Energy Efficiency Economy Baseline* study completed in March 2009 and subsequently updated in 2010. The calculators used to produce the estimates were reviewed and approved by the Department of Economic and Community Development in December 2013.

<sup>69</sup> The estimate for CHP jobs created is a professional estimate made by CEFIA staff, and based on the Navigant Study findings. The estimate does not include AD projects as this technology was not included in the original study.

## Key Definitions

### Class I Renewable Energy

Conn. Gen. Stat. §16-1(a)(26) defines “Class I renewable energy source” as: “(A) electricity derived from (i) solar power, (ii) wind power, (iii) a fuel cell, (iv) geothermal, (v) landfill methane gas, anaerobic digestion or other biogas derived from biological sources, (vi) thermal electric direct energy conversion from a certified Class I renewable energy source, (vii) ocean thermal power, (viii) wave or tidal power, (ix) low emission advanced renewable energy conversion technologies, (x) a run-of-the-river hydropower facility that began operation after July 1, 2003, and has a generating capacity of not more than thirty megawatts, provided a facility that applies for certification under this clause after January 1, 2013, shall not be based on a new dam or a dam identified by the commissioner as a candidate for removal, and shall meet applicable state and federal requirements, including applicable site-specific standards for water quality and fish passage, or (xi) a biomass facility that uses sustainable biomass fuel and has an average emission rate of equal to or less than .075 pounds of nitrogen oxides per million BTU of heat input for the previous calendar quarter, except that energy derived from a biomass facility with a capacity of less than five hundred kilowatts that began construction before July 1, 2003, may be considered a Class I renewable energy source, or (B) any electrical generation, including distributed generation, generated from a Class I renewable energy source, provided, on and after January 1, 2014, any megawatt hours of electricity from a renewable energy source described under this subparagraph that are claimed or counted by a load-serving entity, province or state toward compliance with renewable portfolio standards or renewable energy policy goals in another province or state, other than the state of Connecticut, shall not be eligible for compliance with the renewable portfolio standards established pursuant to section 16-245a.”

### Class II Renewable Energy

Conn. Gen. Stat. §16-1(a)(27) defines “Class II renewable energy source” as: “energy derived from a trash-to-energy facility, a biomass facility that began operation before July 1, 1998, provided the average emission rate for such facility is equal to or less than .2 pounds of nitrogen oxides per million BTU of heat input for the previous calendar quarter, or a run-of-the-river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the riverflow, and began operation prior to July 1, 2003.”

### Class III Renewable Energy

Conn. Gen. Stat. §16-1(a)(44) defines “Class III source” as: “the electricity output from combined heat and power systems with an operating efficiency level of no less than fifty per cent that are part of customer-side distributed resources developed at commercial and industrial facilities in this state on or after January 1, 2006, a waste heat recovery system installed on or after April 1, 2007, that produces electrical or thermal energy by capturing preexisting waste heat or pressure from industrial or commercial processes, or the electricity savings created in this state from conservation and load management programs begun on or after January 1, 2006, provided on and after January 1, 2014, no such programs supported by ratepayers, including programs overseen by the Energy Conservation Management Board or third-party programs pursuant to section 16-245m, shall be considered a Class III source, except that any demand-side management project awarded a contract pursuant to section 16-243m shall remain eligible as a Class III source for the term of such contract.”

### Clean Energy Fund (CEF)

A fund formed pursuant to Conn. Gen. Stat. 16-245n which is supported by a one mill per kilowatt hour charge to each end use customer of electric services in the state plus any federal funds as may become



available to the state for clean energy investments. The fund is used by Connecticut Green Bank to promote investment in clean energy in accordance with a comprehensive plan developed by Connecticut Green Bank to foster the growth, development and commercialization of clean energy sources, related enterprises and stimulate demand for clean energy and deployment of clean energy sources that serve end use customers in this state and for the further purpose of supporting operational demonstration projects for advanced technologies that reduce energy use from traditional sources.

### **Comprehensive Energy Strategy (CES)**

Pursuant to Conn. Gen. Stat. § 16a-3d, the comprehensive energy strategy is developed by DEEP every three years which assesses and plans for all energy needs in the state, including, but not limited to electricity, heating, cooling, and transportation, includes the findings of the IRP, C&LM Plan, CP, and Energy Assurance Plan.

### **Comprehensive Plan (CP)**

Pursuant to Conn. Gen. Stat. § 16-245n, the comprehensive plan is developed by the Green Bank to foster the growth, development and commercialization of clean energy sources, related enterprises and stimulate demand for clean energy and deployment of clean energy sources that serve end use customers in the state as well as support operational demonstration projects for advanced technologies that reduce energy use from traditional sources.

### **Connecticut Energy Efficiency Fund (CEEF)**

A fund formed pursuant to Conn. Gen. Stat. § 16-245m, supported by a charge of up to three mills per kWh on electric bills which is used to implement cost-effective energy conservation programs and market transformation initiatives in accordance with the Conservation and Load Management Plan approved by the Energy Efficiency Board and DEEP.

### **Connecticut Renewable Portfolio Standards (RPS)**

Pursuant to Conn. Gen. Stat. § 16-245a, each electric supplier and electric distribution company is required to demonstrate by January 1, 2020 that not less than twenty per cent of the total output or services of any such supplier or distribution company shall be generated from Class I renewable energy sources and an additional three per cent of the total output or services shall be from Class I or Class II renewable energy sources.

### **Critical Facilities**

Conn. Gen. Stat. § 16-243y(a)(2) defines “critical facility” as: “any hospital, police station, fire station, water treatment plant, sewage treatment plant, public shelter, correctional facility or production and transmission facility of a television or radio station, whether broadcast, cable or satellite, licensed by the Federal Communications Commission, any commercial area of a municipality, a municipal center, as identified by the chief elected official of any municipality, or any other facility or area identified by the DEEP as critical.” It should be noted that DEEP considers grocery stores and gas stations as “other critical facilities” as well as part of the micro grid initiative.

### **Economically Viable**

Economically viable means the costs are cheaper than the grid. For example, what makes solar viable?

- A large system with economies of scale resulting in a lower installed cost
- Panels must receive enough sun
- Installed cost must be low enough or the subsidy high enough

- Price of the alternative, grid-power, must be high enough.

### **Energize Connecticut**

Energize Connecticut is an initiative of the Energy Efficiency Fund, the Clean Energy Finance and Investment Authority, the State and your local electric and gas utilities dedicated to empowering Connecticut citizens to make smart energy choices, now and in the future.

### **Green Connecticut Loan Guaranty Fund**

A fund formed by the Connecticut Green Bank pursuant to Conn. Gen. Stat. § 16a-40e and Conn. Gen. Stat. § 16a-40f, the fund is used for the purpose of guaranteeing loans made by participating lending institutions to a participating qualified nonprofit organization for eligible energy conservation projects, including for two or more joint eligible energy conservation projects.

### **Integrated Resources Plan (IRP)**

Pursuant to Conn. Gen. Stat. § 16a-3a, the integrated resource plan is developed by the DEEP, in consultation with the electric distribution companies, for the procurement of energy resources, including, but not limited to, conventional and renewable generating facilities, energy efficiency, load management, demand response, combined heat and power facilities, distributed generation and other emerging energy technologies to meet the projected requirements of customers in a manner that minimizes the cost of all energy resources to customers over time and maximizes consumer benefits consistent with the state's environmental goals and standards.

### **Levelized Cost of Energy (LCOE)**

Levelized cost of electricity (LCOE) is a summary measure of the overall competitiveness of different generating technologies. It represents the per-kilowatt hour cost (in real dollars) of building and operating a generating plant over an assumed financial life and duty cycle. Key inputs to calculating LCOE include capital costs, fuel costs, fixed and variable operations and maintenance (O&M) costs, financing costs, and an assumed utilization rate for each plant type.

### **Low Emission Renewable Energy Credit (LREC)**

An LREC is a Class I Renewable Energy Credit from a low-emissions project as defined in Conn. Gen. Stat. § 16-244t. LREC-qualified projects are Connecticut generation projects that are located behind company customer meters, achieve commercial operation on or after July 1, 2011, and have emissions of no more than 0.07 pounds per megawatt-hour (MWh) of nitrogen oxides, 0.10 pounds per MWh of carbon monoxide, 0.02 pounds per MWh of volatile organic compounds, and one grain per 100 standard cubic feet. To qualify for the LREC/ZREC Program, LREC projects may not be larger than 2,000 kilowatts (kW).

### **Micro Grid**

Conn. Gen. Stat. § 16-243y(a)(5) defines “microgrid” as: “a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid and that connects and disconnects from such grid to enable it to operate in both grid-connected or island mode.”

### **Net Metering**

Pursuant to Conn. Gen. Stat. § 16-243h net metering is the process by which electric suppliers and electric distribution companies are required to interconnect and give a credit for any electricity generated by customers from Class I renewable energy sources or hydropower facility of less than two

megawatts. The amount of electricity the customer produces shall be deducted from the amount the customer uses in each monthly billing period and any excess generation shall be credited toward the next monthly billing period. At the end of each year, the electric distribution company or electric supplier shall compensate the customer-generator for any excess kilowatt-hours generated, at the avoided cost of wholesale power.

### **Renewable Energy Credit (REC)**

A REC represents the property rights to the environmental, social, and other nonpower qualities of renewable electricity generation. A REC, and its associated attributes and benefits, can be sold separately from the underlying physical electricity associated with a renewable-based generation source. Connecticut Statutory Framework - Pursuant to Conn. Gen. Stat. § 16-245a, RECs are used to satisfy the Class I, II, and III RPS obligations mandated by Conn. Gen. Stat. §§ 16-245; 16-243q. Electric suppliers may procure RECs by long-term contracting mechanisms, purchasing eligible certificates issued by the New England Power Pool Generation Information System or by purchasing eligible renewable electricity and associated attributes from residential customers who are net producers. Additionally there are two subcategories of RECs.

### **Serviceable Addressable Market (SAM)**

SAM is a market for which the technology makes economic sense. A SAM is a segment of the TAM that should be targeted and must meet select criteria of what makes the market serviceable. TAM and SAM are not static. In other words, what is technically possible or economically viable today will change in the future. TAM and SAM represent measurements at a point in time.

### **Special Capital Reserve Fund (SCRF)**

SCRF allows quasi-public agencies to issue bonds for self-supporting projects or programs that are backed by the State of Connecticut, lowering the cost of capital for the program. SCRF has historically been used to help launch new financing programs in Connecticut, including CDA, CHESLA, CHFA, CHEFA, CRRRA, and UCONN student fees. Pursuant to Conn. Gen. Stat. § 16-245mm, the Green Bank received \$50 million in SCRF authorization, for self-sufficient financing for energy efficiency/clean energy programs.

### **Total Addressable Market (TAM)**

TAM is maximum technical potential of a market. A TAM describes a goal in relation to a market. Focusing on a market permits identification of customers. Market definition permits comparison of financing goals. TAM helps the Green Bank understand how market size changes in relation to subsidy level, technology cost, and financing costs. The Green Bank uses the TAM data to make tailored financial offerings to each customer, listing terms and savings that demonstrate economic gains of clean energy.

### **Zero Emission Renewable Energy Credit (ZREC)**

A ZREC is Class I Renewable Energy Credit from a zero emissions project as defined in Conn. Gen. Stat. § 16-244r. ZREC-qualified projects are Connecticut generation projects that are located behind company customer meters, achieve commercial operation on or after July 1, 2011, and emit no pollutants. To qualify for the LREC/ZREC Program, ZREC projects may not be larger than 1,000 kW.



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# Memo

**To:** Board of Directors

**From:** Mackey Dykes (Chief of Staff), Brian Farnen (General Counsel and CLO), Bryan Garcia (President and CEO), and Bert Hunter (Executive Vice President and CIO)

**CC:** Jessica Bailey, Andy Brydges, Dale Hedman, and Kerry O'Neill,

**Date:** June 24, 2014

**Re:** Request for Adjustment in Officer Approvals – Funding Requests below \$300,000 and in Aggregate less than \$500,000

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## BACKGROUND

On January 18, 2013, the Connecticut Green Bank (“Green Bank”) Board of Directors (“Board”) approved of a recommendation brought forth by the Deployment Committee to approve the authorization of Green Bank staff to evaluate and approve program funding requests less than \$300,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Green Bank Comprehensive Plan, approved within Green Bank’s fiscal budget and in an aggregate amount not to exceed \$500,000 from the date of the last Deployment Committee meeting – **see Appendix I for the Resolution**. This policy is consistent with that of the Connecticut Clean Energy Fund (CCEF), the predecessor to Green Bank, who’s Board passed a similar resolution permitting staff to approve funding requests below \$300,000.

By authorizing Green Bank staff to approve funding requests below \$300,000 within clear established guidelines, Green Bank staff is further empowered to manage the day to day operations of Green Bank consistent with the broader vision of the Green Bank Board. Green Bank staff is now requesting an adjustment in the policy where Green Bank staff would provide a report to the Deployment Committee as soon as the aggregate amount reaches the set aggregate limit of \$500,000 without having to wait for the next Deployment Committee meeting. Green Bank staff would provide notice to the Deployment Committee that the aggregate limit of \$500,000 has been reached or is about to be reached along with a memorandum describing the specifics of each project funded. The Directors would have five (5) business days to respond with any comments or concerns. If there are no objections by a Director, the aggregate amount would reset to zero.

## **PRIOR APPROVALS**

As of May 1, 2014, \$2,337,829 in staff approvals of 22 transactions have taken place since the inception of the internal approval policy approved by the Green Bank Board of Directors on January 18, 2013. Staff has submitted 6 memos to the Deployment Committee demonstrating on average that \$390,000 of transactions have occurred between Deployment Committee meetings. Over 70 percent of the amount of those approvals was in the form of loans (i.e. 12 projects totaling on average of \$135,000 per loan), with the remaining 30 percent in grants (i.e. 10 projects on average of \$70,000 per grant). See **Appendix II for a summary of projects.**

## **JUSTIFICATION FOR REQUEST FOR ADJUSTMENT**

Green Bank staff is making this request due to the increased volume of projects, especially within the C-PACE program. Additionally, Green Bank has operationalized increased standardization with the relevant financing documents, underwriting and technical review for such programmatic projects.

## RESOLUTION

**WHEREAS**, pursuant to Section 5.3.1 of the Connecticut Green Bank (the “Green Bank”) Bylaws, the Audit, Compliance & Governance (ACG) Committee is charged with the review and approval of, and in its discretion recommendations to the Green Bank Board of Directors (the “Board”) regarding, all governance and administrative matters affecting the Green Bank, including but not limited to matters of corporate governance and corporate governance policies;

**WHEREAS**, on January 18, 2013, the Board authorized the Green Bank staff to evaluate and approve funding requests less than \$300,000 which are pursuant to an established formal approval process requiring the signature of a Green Bank officer, consistent with the Green Bank Comprehensive Plan, approved within Green Bank’s fiscal budget *and in an aggregate amount not to exceed \$500,000* from the date of the last Deployment Committee meeting (“Staff Approval Policy for Projects Under \$300,000”);

**WHEREAS**, on May 15, 2014 the Green Bank Deployment Committee voted in favor of recommending that the Board adopt a resolution amending the Staff Approval Policy for Projects Under \$300,000 to increase the aggregate amount limit from \$500,000 to \$1,500,000 from the date of the last Deployment Committee meeting; and

**WHEREAS**, on June 4, 2014 the Green Bank Audit, Compliance and Governance Committee voted in favor of recommending that the Board adopt a resolution amending the Staff Approval Policy for Projects Under \$300,000 to increase the aggregate amount limit from \$500,000 to \$1,000,000 from the date of the last Deployment Committee meeting.

**NOW**, therefore be it:

**RESOLVED**, that the Green Bank Board of Directors (“Board”) hereby adopts a resolution amending the Staff Approval Policy for Projects Under \$300,000 to maintain the aggregate amount limit at \$500,000 but to allow the aggregate amount to be reset after the Deployment Committee has been notified that the limit has been reached or is about to be reached and the members of the Deployment Committee are provided five (5) business days to respond with any objections to the aggregate amount being reset.

**RESOLVED**, that if any member of the Deployment Committee has an objection to the aggregate amount being reset to zero, the Green Bank staff will not approve any additional projects until a full report is made at either the next Board or Deployment Committee meeting.

## **Appendix I**

### **Policy on Staff Approval of Program Funding Requests (Resolution of the Connecticut Green Bank, formerly named the Clean Energy Finance and Investment Authority (CEFIA), Board of Directors on January 18, 2013)**

**WHEREAS**, pursuant to Section 5.3.3 of the CEFIA Bylaws, the CEFIA Deployment Committee has been granted the authority to evaluate and approve funding between \$300,000 and \$2,500,000; and

**WHEREAS**, CEFIA staff requests that staff have the authority to evaluate and approve funding requests less than \$300,000, which are consistent with the CEFIA Comprehensive Plan and approved within CEFIA's fiscal year budget; and

**WHEREAS**, the Audit, Compliance & Governance Committee recommends approval to the Board of Directors to authorize CEFIA staff to evaluate and approve funding requests less than \$300,000, which are pursuant to an established formal approval process requiring the signature of a CEFIA officer, consistent with the CEFIA Comprehensive Plan, approved within CEFIA's fiscal budget and in an aggregate amount not to exceed \$500,000 from the date of the last Deployment Committee meeting.

**NOW**, therefore be it:

**RESOLVED**, that the CEFIA Board of Directors hereby approves the authorization of CEFIA staff to evaluate and approve program funding requests less than \$300,000 which are pursuant to an established formal approval process requiring the signature of a CEFIA officer, consistent with the CEFIA Comprehensive Plan, approved within CEFIA's fiscal budget and in an aggregate amount not to exceed \$500,000 from the date of the last Deployment Committee meeting.

**Appendix II**  
Deployment Committee Memo Summary Tables

*February 8, 2013*

<b>Project Name</b>	<b>Amount</b>	<b>Type</b>	<b>Staff Request</b>
Florence Blackham Elementary School	\$141,300	Grant	Dale Hedman
Community District Heating and Cooling	\$50,000	Loan	Bert Hunter
542 Westport Avenue	\$185,231	Loan	Jessica Bailey
Chester Town Hall	\$32,000	Grant	Bob Wall
<b>Total</b>	<b>\$408,531</b>		

*April 30, 2013*

<b>Project Name</b>	<b>Amount</b>	<b>Type</b>	<b>Staff Request</b>
Cesar A. Batella School	\$288,300	Grant	Dale Hedman
Brown's Family Farm	\$4,500	Grant	Rick Ross
Wilton Community Innovations Grant	\$2,000	Grant	Bob Wall
Windham Community Innovations Grant	\$5,000	Grant	Bob Wall
West Haven City Hall	\$24,234	Grant	Bob Wall
Common Ground High School	\$155,200	Grant	Dale Hedman
<b>Total</b>	<b>\$479,234</b>		

*July 2, 2013*

<b>Project Name</b>	<b>Amount</b>	<b>Type</b>	<b>Staff Request</b>
ID Products	\$107,556	Loan	Jessica Bailey
41 Walnut Street	\$170,000	Loan	Jessica Bailey
Regional YMCA of Western Connecticut	\$87,938	Loan	Jessica Bailey
Reed Intermediate School	\$25,000	Grant	Bob Wall
Southington High School	\$18,000	Grant	Bob Wall
<b>Total</b>	<b>\$408,494</b>		

*September 3, 2013*

<b>Project Name</b>	<b>Amount</b>	<b>Type</b>	<b>Staff Request</b>
Larsen Ace Hardware	\$153,500	Loan	Jessica Bailey
True Value hardware	\$259,000	Loan	Jessica Bailey
Great Pond Village Urban Micro Grid	\$49,501	Loan	Dale Hedman
<b>Total</b>	<b>\$462,001</b>		

*March 7, 2014*

<b>Project Name</b>	<b>Amount</b>	<b>Type</b>	<b>Staff Request</b>
Northeast Tools	\$122,471	Loan	Jessica Bailey
<b>Total</b>	<b>\$122,471</b>		



April 25, 2014

<b>Project Name</b>	<b>Amount</b>	<b>Type</b>	<b>Staff Request</b>
Air Temp Mechanical	\$139,050	Loan	Jessica Bailey
Eli Properties	\$266,932	Loan	Jessica Bailey
Calvary Temple Christian Center	\$51,116	Loan	Jessica Bailey
<b>Total</b>	<b>\$457,098</b>		



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# Memo

**To: Board of Directors**  
**From: Mackey Dykes, Chief of Staff**  
**Date: May 10, 2014**  
**Re: Revised Salary Ranges**

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The Clean Energy Finance and Investment Authority's (CEFIA) success can be attributed largely in part to its ability to attract and retain a high-caliber staff. This ability is a result of several things, including an exciting mission, a national identity as a leader in the green bank movement, and the progressive energy policy of Connecticut. Also important in this mix is a flexible and competitive salary structure. While CEFIA cannot expect to compete with private financial institutions, it is useful to understand the market and benchmark against what both private and similar public institutions offer. CEFIA undertook a study and is proposing new Director I level and above salary ranges (highlighted in Attachment A) for board approval. There is no cost as no actual salaries will immediately change as a result of this recommendation but this action will put in place a structure that continues CEFIA's ability to attract and retain top talent.

## **Background**

In late 2012, Connecticut Innovations (CI) and CEFIA contracted with Buck Consultants to conduct a market compensation study (Attachment B). Buck Consultants developed the methodology of the project in consultation with CEFIA and CI staff and two joint board members, Commissioner Smith and John Olsen.

Benchmark CEFIA positions were chosen from the 3 business units: Corporate, Program and Finance/Investment. Buck Consultants obtained comparable compensation data from both private and nonprofit government entities. The study evaluated CEFIA's market position including base salary, bonus and benefits and the results were weighted to reflect CEFIA's position as a quasi-state organization that could not pay private-level salaries but could offer other incentives such as better than average benefits.

## **Results and Recommendation**

The results of the study are documented in Attachment B. Broadly, Buck Consultants found that, with a few exceptions, the weighted CEFIA base salaries are within an acceptable range (defined by Buck Consultants to be plus or minus ten percent) of the market median. However,

when compared to total cash compensation (base salary plus bonus), several senior positions fell short of this range.

We are recommending a new salary structure (Attachment A) based on the study. The new structure will allow CEFIA to offer attractive salaries and, when appropriate, increase existing salaries for retention. In addition, it will provide parity across the organization as well as offer a smooth progression for career paths. Positions have been organized into eight grades for each business segment plus an Executive level.

Per CEFIA's operating procedures, salary ranges below the Director level have been approved by the President. Approval is requested for ranges at the Director I level and above (highlighted in attachment A)

**Resolution**

**RESOLVED**, the Connecticut Green Bank Board of Directors approves the salary ranges for Director I level positions and above outlined in Attachment A.

Submitted by: Mackey Dykes, Chief of Staff

### CEFIA Schedule of Positions

Grade	Corporate Division Positions	Program Division Positions	Investment Division Positions
1	Administrative Assistant	Administrative Assistant	Administrative Assistant
2	Assistant / Executive Assistant	Project Assistant / Executive Assistant	Assistant / Executive Assistant
3	Associate	Associate	Associate
4	Paralegal / Senior Associate / Assistant Manager / Associate Manager	Senior Associate / Assistant Manager / Associate Manager	Senior Associate / Assistant Manager / Associate Manager
5	Manager / Contract Administrator	Manager	Manager
6	Contract Manager / Senior Manager / Assistant Director / Associate Director	Senior Manager / Assistant Director / Associate Director	Senior Manager / Assistant Director / Associate Director
7	Director I	Director I	Director I
8	Director II / Managing Director	Director II / Managing Director	Director II / Managing Director
Executive (EX)	Vice President / Chief Legal Officer / President -Chief Executive Officer	Vice President / Officer	Executive Vice President / Chief Investment Officer

## CEFIA Corporate Positions

Grade	Job Title	CURRENT RANGES		MARKET SURVEY INFORMATION		PROPOSED RANGES		
		Min	Max	Market Base Midpoint	Market TCC* Midpoint	Min	Mid	Max
1	Administrative Assistant	\$ 37,655	\$ 53,365	\$ 42,000	\$ 43,000	\$ 32,568	\$ 40,803	\$ 49,037
2	Assistant	\$ 38,666	\$ 54,610	\$ 45,000	\$ 46,000	\$ 39,081	\$ 48,963	\$ 58,845
	Executive Assistant	\$ 38,742	\$ 51,884	\$ 46,000	\$ 47,000			
3	Associate	\$ 52,418	\$ 74,031	\$ 70,000	\$ 71,000	\$ 46,898	\$ 58,756	\$ 70,613
4	Paralegal	\$ 52,521	\$ 69,160	\$ 60,000	\$ 61,000	\$ 56,277	\$ 70,506	\$ 84,735
	Senior Associate	New						
	Assistant Manager	New						
	Associate Manager	New						
5	Manager	\$ 77,787	\$ 109,861	\$ 85,000	\$ 90,000	\$ 67,532	\$ 79,450	\$ 91,367
	Contract Administrator	New						
6	Contract Manager	New		\$ 77,000	\$ 80,000	\$ 81,039	\$ 95,340	\$ 109,641
	Senior Manager	\$ 66,123	\$ 93,385					
	Assistant Director	New						
	Associate Director	New						
7	Director I	\$ 102,307	\$ 144,490	\$ 108,000	\$ 122,000	\$ 91,526	\$ 114,408	\$ 137,289
8	Director II	\$ 118,867	\$ 167,880			\$ 109,832	\$ 126,994	\$ 144,155
	Managing Director	New				\$ 137,290	\$ 151,019	\$ 164,748
EX	Chief Legal Officer	\$ 131,635	\$ 184,716	\$ 178,000	\$ 217,000	\$ 130,200	\$ 162,750	\$ 195,300
	Vice President	New		\$ 169,000	\$ 190,000	\$ 116,250	\$ 150,000	\$ 183,750
	President	\$ 131,635	\$ 184,716	\$ 273,000	\$ 345,000	\$ 172,000	\$ 207,500	\$ 243,000

\*Total Cash Compensation (TCC) is equal to the sum of base salary plus annual bonus

### CEFIA Program Positions

Grade	Job Title	CURRENT RANGES		MARKET SURVEY INFORMATION		PROPOSED RANGES		
		Min	Max	Market Base Midpoint	Market TCC* Midpoint	Min	Mid	Max
1	Administrative Assistant	\$ 37,655	\$ 53,365	\$ 42,000	\$ 43,000	\$ 32,568	\$ 40,803	\$ 49,037
2	Program Assistant	\$ 38,666	\$ 54,610	\$ 45,000	\$ 46,000	\$ 39,081	\$ 48,963	\$ 58,845
	Executive Assistant	\$ 38,742	\$ 51,884	\$ 46,000	\$ 47,000			
3	Associate	\$ 52,418	\$ 74,031	\$ 70,000	\$ 71,000	\$ 46,898	\$ 58,756	\$ 70,613
4	Senior Associate		New			\$ 56,277	\$ 70,506	\$ 84,735
	Assistant Manager		New					
	Associate Manager		New					
5	Manager	\$ 77,787	\$ 109,861	\$ 85,000	\$ 90,000	\$ 73,757	\$ 86,773	\$ 99,789
6	Senior Manager	\$ 82,459	\$ 116,460	\$ 104,000	\$ 113,000	\$ 88,508	\$ 104,127	\$ 119,746
	Assistant Director		New					
	Associate Director	\$ 97,898	\$ 138,264					
7	Director I	\$ 102,307	\$ 144,490	\$ 125,000	\$ 135,000	\$ 99,962	\$ 124,697	\$ 149,431
8	Director II	\$ 118,867	\$ 167,880	\$ 125,000	\$ 135,000	\$ 120,000	\$ 138,750	\$ 157,500
	Managing Director					\$ 150,000	\$ 165,000	\$ 180,000
EX	Vice President Officer		New	\$ 169,000	\$ 190,000	\$116,250	\$150,000	\$183,750
						\$ 130,200	\$ 162,750	\$ 195,300

\*Total Cash Compensation (TCC) is equal to the sum of base salary plus annual bonus

### CEFIA Investment Positions

Grade	Job Title	CURRENT RANGES		MARKET SURVEY		PROPOSED RANGES		
		Min	Max	Market Base Midpoint	Market TCC* Midpoint	Min	Mid	Max
1	Administrative Assistant	\$ 37,655	\$ 53,365	\$ 42,000	\$ 43,000	\$ 32,568	\$ 40,803	\$ 49,037
2	Assistant	\$ 38,666	\$ 54,610	\$ 45,000	\$ 46,000	\$ 39,081	\$ 48,963	\$ 58,845
	Executive Assistant	\$ 38,742	\$ 51,884	\$ 46,000	\$ 47,000			
3	Associate	\$ 52,418	\$ 74,031	\$ 70,000	\$ 71,000	\$ 46,898	\$ 58,756	\$ 70,613
4	Senior Associate		New			\$ 56,277	\$ 70,506	\$ 84,735
	Assistant Manager		New					
	Associate Manager		New					
5	Manager	\$ 77,635	\$ 109,647	\$ 96,000	\$ 105,000	\$ 75,157	\$ 88,420	\$ 101,683
6	Senior Manager	\$ 82,459	\$ 116,460	\$ 106,000	\$ 115,000	\$ 90,188	\$ 106,104	\$ 122,019
	Assistant Director		New					
	Associate Director		New					
7	Director I	\$ 102,307	\$ 144,490			\$ 106,104	\$ 132,630	\$ 159,156
8	Director II	\$ 118,867	\$ 167,880			\$ 132,632	\$ 153,356	\$ 174,080
	Managing Director		New			\$ 165,790	\$ 182,369	\$ 198,948
EX	Vice President/Chief Investment Officer	\$ 131,666	\$ 184,716	\$ 186,000	\$ 288,000	\$ 145,824	\$ 182,187	\$ 218,550

\*Total Cash Compensation (TCC) is equal to the sum of base salary plus annual bonus

June 10, 2014

The Board of Directors of CEFIA Solar Services, Inc.  
CT Solar Lease 2 LLC

We have audited the financial statements of CT Solar Lease 2 LLC for the year ended December 31, 2013, and have issued our report thereon dated June 10, 2014. Professional standards require that we provide you with information about our responsibilities under generally accepted auditing standards, as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our engagement letter dated November 15, 2013. Professional standards also require that we communicate to you the following information related to our audit.

### Significant Audit Findings

#### *Qualitative Aspects of Accounting Practices*

You are responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by CT Solar Lease 2 LLC are described in Note 2 to the financial statements. The application of existing policies was not changed during 2013. We noted no transactions entered into by the Company 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.

Accounting estimates are an integral part of the financial statements and are based on your knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. We found no sensitive estimates affecting the financial statements for 2013.

The financial statement disclosures are neutral, consistent, and clear.

#### *Difficulties Encountered in Performing the Audit*

We encountered no significant difficulties in performing and completing our audit.

#### *Uncorrected Misstatements*

Professional standards require us to accumulate all misstatements identified during the audit, other than those that are clearly trivial, and communicate them to the appropriate level of management. You have corrected all such misstatements.

#### *Disagreements with Management*

For purposes of this letter, a disagreement with management is a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.



*Other Matters*

As described in Note 5 to the financial statements, the Company has entered into a Lease Servicing Agreement with AFC First Financial Corporation ("AFC"). For the year ended December 31, 2013, there were only deposits received however, going forward the information provided by AFC will be significant to the financial statements of the Company. Management should monitor the services of AFC and any sub-service organizations by obtaining and reviewing reports on their internal controls (SOC 1 reports), reviewing user control consideration, and ensuring compliance with those considerations.

This information is intended solely for the use of the Board of Directors of CT Solar Lease 2 LLC and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,

A handwritten signature in cursive script that reads "CohnReznick LLP". The signature is written in black ink and is positioned above the typed name of the firm.

CohnReznick LLP

Farmington, Connecticut

**CT Solar Lease 2 LLC**  
**Financial Statements**  
**and Independent Auditor's Report**  
**May 28, 2013 (Date of Inception)**  
**through December 31, 2013**

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## CT Solar Lease 2 LLC

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## Independent Auditor's Report

To the Members  
CT Solar Lease 2 LLC

We have audited the accompanying financial statements of CT Solar Lease 2 LLC (the "Company"), which comprise the balance sheet as of December 31, 2013, and the related statements of operations, changes in members' equity and cash flows for the period from May 28, 2013 (date of inception) through December 31, 2013, and the related notes to the financial statements.

### *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### *Auditor's Responsibility*

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

*Opinion*

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of CT Solar Lease 2 LLC as of December 31, 2013, and the results of its operations and its cash flows for the period from May 28, 2013 (date of inception) through December 31, 2013, in accordance with accounting principles generally accepted in the United States of America.

Farmington, Connecticut  
June XX, 2014

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## CT Solar Lease 2 LLC

### Balance Sheet December 31, 2013

#### Assets

Current assets:	
Cash	\$ 321,066
Customer deposits	57,077
Prepaid expenses	21,205
Total current assets	<u>399,348</u>
Solar facilities	<u>108,095</u>
Other assets:	
Restricted cash	4,500,000
Deferred financing fees (net of accumulated amortization of \$14,340)	<u>473,223</u>
Total other assets	<u>4,973,223</u>
Total assets	<u><u>\$ 5,480,666</u></u>

#### Liabilities and Members' Equity

Current liabilities:	
Accrued expenses	\$ 84,278
Accrued interest payable	29,090
Deferred revenue	19,043
Due to related parties	359,575
Due to members	206,394
Total current liabilities	<u>698,380</u>
Long-term liability:	
Sponsor note payable	<u>2,300,000</u>
Total liabilities	2,998,380
Commitments	
Members' equity	<u>2,482,286</u>
Total liabilities and members' equity	<u><u>\$ 5,480,666</u></u>

See Notes to Financial Statements.

## CT Solar Lease 2 LLC

### Statement of Operations

Period from May 28, 2013 (Date of Inception) through December 31, 2013

Revenues	\$ -
Operating expenses:	
Cost of operations	33,922
Professional fees	157,322
Project administration	60,000
General and administrative	668
	<hr/>
Total operating expenses	251,912
	<hr/>
Operating loss	(251,912)
	<hr/>
Other income (expenses):	
Commitment fees	(146,394)
Interest expense	(29,090)
Amortization expense	(14,340)
Interest income	4,419
	<hr/>
Total other expenses	(185,405)
	<hr/>
Net loss	\$ (437,317)
	<hr/> <hr/>

See Notes to Financial Statements.

## CT Solar Lease 2 LLC

### Statement of Changes in Members' Equity Period from May 28, 2013 (Date of Inception) through December 31, 2013

	<u>Managing Member</u>	<u>Investor Member</u>	<u>Total</u>
Capital contributions	\$ 3,536,489	\$ 236,594	\$ 3,773,083
Syndication fees	-	(853,480)	(853,480)
Net loss	<u>(4,373)</u>	<u>(432,944)</u>	<u>(437,317)</u>
Balance, December 31, 2013	<u>\$ 3,532,116</u>	<u>\$ (1,049,830)</u>	<u>\$ 2,482,286</u>

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## CT Solar Lease 2 LLC

### Statement of Cash Flows

Period from May 28, 2013 (Date of Inception) through December 31, 2013

Operating activities:	
Net loss	\$ (437,317)
Adjustments to reconcile net loss to net cash used in operating activities:	
Amortization of deferred financing fees	14,340
Changes in operating assets and liabilities:	
Customer deposits	(57,077)
Prepaid expenses	(21,205)
Accrued expenses	84,278
Accrued interest payable	29,090
Deferred revenue	19,043
	<hr/>
Net cash used in operating activities	(368,848)
	<hr/>
Investing activities:	
Purchase of solar facilities	(108,095)
Restricted cash	(4,500,000)
	<hr/>
Net cash used in investing activities	(4,608,095)
	<hr/>
Financing activities:	
Contributions from members	3,773,083
Sponsor note proceeds	2,300,000
Loans from related parties	359,575
Deferred financing fees paid	(487,563)
Syndication fees	(853,480)
Loans from members	206,394
	<hr/>
Net cash provided by financing activities	5,298,009
	<hr/>
Net increase in cash	321,066
Cash, beginning of period	-
	<hr/>
Cash, end of period	<u>\$ 321,066</u>

See Notes to Financial Statements.

## CT Solar 2 Lease LLC

### Notes to Financial Statements

May 28, 2013 (Date of Inception) through December 31, 2013

#### Note 1 - Organization and nature of operations

##### Organization

CT Solar Lease 2 LLC (the "Company"), a Connecticut limited liability company, was formed on May 28, 2013 as a subsidiary of CEFIA Solar Services Inc. for the purpose of acquiring title to solar photovoltaic and solar thermal equipment leases with Connecticut homeowners and businesses, as well as power purchase agreements ("PPAs") for not for profits and municipalities, from CEFIA Holdings LLC (the "Developer") using capital from its members along with non-recourse funding from participating banks. The members' liability with regard to the limited liability company is limited to their capital accounts plus any amounts guaranteed.

As detailed in the Operating Agreement dated June 28, 2013, the Company has two members, CEFIA Solar Services Inc., its Managing Member, and Firstar Development, LLC, its Investor Member who was admitted as a member in the Company as of June 28, 2013. The Investor Member committed to making capital contributions up to \$23,659,490 (the "Investor Member Contribution Cap") in exchange for 99% of the Company's membership interests. Through December 31, 2013, the Investor Member has contributed \$236,594. The Managing Member holds 1% of the Company's membership interests. Through December 31, 2013, the Managing Member has contributed \$3,536,489.

The Investor Member is the Tax-Equity Investor and is entitled to substantially all of the tax benefits of the Company until January 1 of the year which is five years after the date the last system is installed, which is anticipated to be January 1, 2021, the Flip Date. The Managing Member is required to oversee the overall operations of the Company.

The Managing Member shall have the right to acquire 100%, but not less than 100%, of the Investor Member interests at any time during the six-month period following either (1) the Flip Date or (b) the fifth anniversary of the Flip Date. Both six-month periods are a Call Period.

The Investor Member shall have the right at any time during the six-month period after each Call Period to resign and voluntarily withdraw from the Company, in whole, but not in part, and receive an amount from the Managing Member equal to the sum of any unpaid Priority Return and accrued and unpaid Prepaid Priority Return plus the lesser of the fair market value of the Investor Member's interest or \$2,000,000.

The Company shall continue indefinitely unless sooner dissolved by law or in accordance with the terms of the Operating Agreement.

## CT Solar 2 Lease LLC

### Notes to Financial Statements May 28, 2013 (Date of Inception) through December 31, 2013

#### **Nature of operations**

The Company acquires from the Developer residential and commercial-scale solar photovoltaic ("PV") and residential solar thermal systems (the "Projects") which have been installed on the property of both residential and commercial-scale customers in the State of Connecticut before the Projects have been placed in service. As part of the transfer and assignment of the Projects to the Company, the Company also acquires the related operating leasing agreements, power purchase agreements (where applicable), warranties, waivers and easements collectively referred to as the "Customer Agreements" which allow the Company to inspect, access, maintain and improve the equipment as necessary.

The Company maintains and operates the Projects in such a manner that each qualifies the Company to receive investment tax credits pursuant to Section 48 of the Internal Revenue Code.

#### **Note 2 - Summary of significant accounting policies**

##### **Basis of presentation**

The accompanying financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP").

##### **Use of estimates**

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenue and expenses for the period presented. Actual results could differ from these estimates.

##### **Cash and cash equivalents**

The Company considers all cash accounts, which are not subject to withdrawal restrictions or penalties, and all highly liquid debt instruments purchased with a maturity of three months or less to be cash equivalents. There were no cash equivalents as of December 31, 2013.

##### **Restricted cash**

In accordance with the terms of the Credit Agreement described in Note 3, the Company is required to maintain a Reserve Account of not less than \$3,500,000 and a Supplemental Reserve Account of \$1,000,000. These funds are completely restricted from use by the Company's operations until July 2015 at which time some portions may be released if certain conditions detailed in the Credit Agreement are met. As of December 31, 2013, restricted cash amounted to \$4,500,000.

## CT Solar 2 Lease LLC

### Notes to Financial Statements

May 28, 2013 (Date of Inception) through December 31, 2013

#### **Solar facilities**

Solar facilities of \$108,095 consist of three residential PV Projects and are stated at cost. As of December 31, 2013, none of the equipment had been placed in service and, therefore, no depreciation is recognized in these financial statements. The Projects were placed in service in 2014.

#### **Syndication fees**

Syndication fees consist of certain legal, consulting and other fees incurred in connection with developing the financial modeling and support for the Company's tax-equity transaction in order to attract and secure an equity investor. In accordance with GAAP, these costs are recorded as an offset to Investor Member's equity.

#### **Deferred financing fees**

Deferred financing fees consist of costs incurred in connection with securing the long-term debt described in Note 3. These costs are amortized using the straight-line method over the maximum term of the credit facility, which is through July 1, 2030. Amortization expense for the period from May 28, 2013 (date of inception) through December 31, 2013 was \$14,340.

#### **Asset retirement obligation**

The Company is required to assess its arrangements for the requirement to record asset retirement obligations when it has the legal obligation to retire long-lived assets. Upon the expiration of the Project leases' or PPAs' initial or extended terms, customers generally have the option to purchase the solar energy facilities at fair market value or require the Company to remove the solar energy facilities at the Company's expense. While a future legal obligation may exist to remove the solar energy facilities upon the expiration of leases or PPAs, the solar energy facilities were placed in service subsequent to December 31, 2013 and, therefore, the Company has not recorded an asset retirement obligation as of December 31, 2013.

#### **Revenue recognition**

The Company will derive revenue from the following sources: operating leases, energy generation, Production Based Incentives ("PBIs") and the sale of Solar Renewable Energy Certificates ("SRECs") to third parties.

Rental income from residential and commercial operating leases will be recognized on a straight-line basis over the term of each underlying lease.

Energy generation revenue will be recognized as electricity is generated, based on actual output and contractual prices set forth in long-term PPAs.

## CT Solar 2 Lease LLC

### Notes to Financial Statements

May 28, 2013 (Date of Inception) through December 31, 2013

PBI payments on residential solar photovoltaic systems will be received through a rebate program funded by the Clean Energy Finance and Investment Authority ("CEFIA"), a quasi-public agency of the State of Connecticut. Payments are based on actual production.

Revenue from the sale of SRECs to third parties is recognized upon the transfer of title and delivery of the SRECs to third parties and is derived from contractual prices set forth in SREC sale agreements.

For the period from May 28, 2013 (date of inception) through December 31, 2013, the Company had no income.

#### **Customer deposits and deferred revenue**

Customer deposits of \$57,077 represent lease prepayments received from residential customers as of December 31, 2013. These funds are held in a separate account in the Company's name. Based on the terms and status of the individual leases to which the deposits pertain, \$38,034 of these funds were due to the Developer and is included in due to related parties on the balance sheet and \$19,043 was deferred revenue as of December 31, 2013. The deferred revenue portion of the deposits will be recognized as revenue once the leases commence on a straight-line basis over the 20 year term of the underlying lease agreements.

#### **Income taxes**

The Company has elected to be treated as a pass-through entity for income tax purposes and, as such, is not subject to income taxes. Rather, all items of taxable income, deductions and tax credits are passed through to and are reported by its members on their respective income tax returns. The Company's Federal tax status as a pass-through entity is based on its legal status as a limited liability company. Accordingly, the Company is not required to take any tax positions in order to qualify as a pass-through entity. The Company is required to file and does file tax returns with the Internal Revenue Service (the "IRS") and other taxing authorities. Accordingly, these financial statements do not reflect a provision for income taxes and the Company has no other tax positions which must be considered for disclosure. Income tax returns filed by the Company are subject to examination by the IRS for a period of three years. The Company's initial filing year will be 2013.

#### **Subsequent events**

Subsequent events have been considered for disclosure and recognition in these financial statements through June XX, 2014, the date the financial statements were available to be issued.

## CT Solar 2 Lease LLC

### Notes to Financial Statements May 28, 2013 (Date of Inception) through December 31, 2013

#### Note 3 - Long-term debt

On June 28, 2013, the Company entered into a Credit Agreement with First Niagara Bank, N.A. as the Administrative Agent and Lender along with three other participating lenders which provides for a \$26,700,000 loan facility commitment broken down by lender as follows:

First Niagara Bank, N.A.	\$ 10,700,000
Liberty Bank	7,000,000
Webster Bank, National Association	7,000,000
People's United Bank	<u>2,000,000</u>
Total	<u>\$ 26,700,000</u>

Funds may be drawn down in no more than ten total advances by July 1, 2015. With the exception of the final advance each advance must be in a principal amount of \$2,670,000 or a whole multiple of \$100,000 in excess of \$2,670,000. Each loan funding will be shared by all participating lenders in accordance with their pro-rata share of the total facility commitment.

Each advance will be amortized separately. The Company has the option with each advance of selecting between the LIBOR rate or the Base Rate which is defined as the highest of (a) the Federal Funds Effective Rate plus one-half of 1%, (b) First Niagara's prime rate, and (c) the LIBOR rate plus 1%. The Company may also elect to convert an advance from one rate to the other by following the process outlined in the Credit Agreement.

Payments of interest with respect to any LIBOR rate advances are due on the 15<sup>th</sup> day of the month following each calendar quarter end. Payments of interest with respect to any Base Rate advances are due monthly. Payments of principal with respect to all advances are due on the 15<sup>th</sup> day of the month following each calendar quarter end. Principal payments on each advance will be based on a modified 15 year amortization schedule as outlined in the Credit Agreement.

Within one month after each advance, the Company is required to enter into an interest rate swap contract with respect to a minimum amount of 75% of such advance. If one of the participating lenders is the counterparty to the swap contract such contract will be secured by the collateral of the Credit Agreement otherwise, the swap contract will be unsecured.

## CT Solar 2 Lease LLC

### Notes to Financial Statements

May 28, 2013 (Date of Inception) through December 31, 2013

Certain obligations of the Company under the Credit Agreement are guaranteed by CEFIA. This Credit Agreement is secured by all assets of the Company as well as the Managing Member's interest in the Company. There are no prepayment penalties. There are certain debt service coverage ratios the Company must maintain related to each separate advance and which require the separate measurement of the net operating income with respect to the Projects purchased with each advance.

As of December 31, 2013, the Company had not borrowed any funds under this Credit Agreement.

#### **Note 4 - Related party transactions**

##### **Unused commitment fee**

In accordance with the Company's operating agreement the Investor Member is entitled to an annual fee due within 30 days of the end of each calendar year, calculated on a monthly basis, based on the amount of the Investor Member's unfunded capital contributions. The fee for each month is equal to 1.25% times the amount by which the Investor Member's Contribution Cap exceeds the total capital contributions funded as of the last day of the month in question divided by twelve. Amounts not paid timely accrue interest at the US Bank Prime Rate in effect on the due date plus 2%. As of December 31, 2013, for the period from July 1, 2013 through December 31, 2013, \$146,394 was due to the Investor Member and is included in due to members on the balance sheet. This amount was paid in full in January 2014.

##### **Administrative services fee**

The Managing Member provides administrative and management services to the Company and earns a quarterly fee initially equal to \$30,000 per quarter beginning July 1, 2013. The amount of the fee will increase 2.5% each July 1<sup>st</sup> beginning July 1, 2014. For the period from May 28, 2013 (date of inception) through December 31, 2013, project administration fees accrued but unpaid were \$60,000. This amount is included in due to members on the balance sheet.

##### **Due to related parties**

As of December 31, 2013, the Company owed CEFIA \$235,065 for reimbursement of legal, consulting and other costs related to the structuring and syndication of the Company's primary operations.

As of December 31, 2013, the Company owed the Developer \$124,510. Of that amount \$90,711 related to the first transfer of Projects dated December 20, 2013 and the remaining \$33,799 represented customer deposits on systems for which ownership had not yet been transferred to the Company as of December 31, 2013.

## CT Solar 2 Lease LLC

### Notes to Financial Statements May 28, 2013 (Date of Inception) through December 31, 2013

#### **Sponsor note payable**

In accordance with provisions of the Company's operating agreement, the Company entered into a subordinated promissory note with CEFIA. CEFIA is the 99% majority shareholder of the Developer which in turn is the sole shareholder of Company's Managing Member. The principal amount of the note is \$2,300,000 and interest of 2.5% accrues and is compounded annually. Interest only payments are due quarterly commencing September 1, 2013 through July 1, 2015. Principal and interest payments will be due quarterly commencing September 1, 2015 in equal installments sufficient to fully amortize the principal balance of the note by its maturity date which is July 1, 2035. All required payments on this note are subordinate to there being no events of default with the Credit Agreement. As of December 31, 2013, accrued interest payable was \$29,090 and no interest payments were made in 2013.

#### **Note 5 - Commitments**

##### **Lease servicing agreement**

The Company has entered into a Lease Servicing Agreement with AFC First Financial Corporation dated June 28, 2013 for the sourcing and servicing of its customer lease portfolio.

#### **Note 6 - Priority return**

The Investor Member shall be due a cumulative, quarterly distribution equal to 0.5% of its paid-in capital contributions in respect of Projects beginning at the end of the first quarter after the first Project acquisition capital contribution is made and continuing until the Flip Date. To the extent the Priority Return is not paid in a quarter until the Flip Date, unpaid amounts will accrue interest at the lower of 24% per annum or the highest rate permitted by law.

In accordance with the Operating Agreement all amounts and accrued interest due on the Priority Return are to be paid from net cash flow prior to certain required payments due under the Credit Agreement. During the period from May 28, 2013 (date of inception) through December 31, 2013, the Investor Member was due \$0 related to the Priority Return.

#### **Note 7 - Concentrations**

The Company maintains cash with financial institutions. At times, these balances may exceed insurance limits provided by the Federal Deposit Insurance Corporation ("FDIC"); however, the Company has not experienced any losses with respect to its bank balances. Management believes that no significant credit risk exists with respect to these cash balances as of December 31, 2013.



## CT Solar 2 Lease LLC

### Notes to Financial Statements

May 28, 2013 (Date of Inception) through December 31, 2013

#### Note 8 - Subsequent events

##### **Solar facilities warranty and insurance**

The Company entered into a Warranty Agreement with the Federal Warranty Service Corporation in January 2014 which provides for warranty management services for all Project equipment and components (excluding solar hot water equipment, which is warranted by the manufacturer) that have at least a 20 year original equipment manufacturers' warranty as well as providing annually renewable property and liability insurance coverage for all solar PV and solar hot water projects.

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~~CLEAN ENERGY FINANCE AND INVESTMENT AUTHORITY~~  
CONNECTICUT GREEN BANK

BYLAWS

PURSUANT TO

Section 16-245n of the  
Connecticut General Statutes

Adopted: ~~May 18, 2012~~

~~Revised:~~ June 21, 2013

Revised: [ \_\_\_\_\_ ]

**ARTICLE I**  
**NAME, PLACE OF BUSINESS**

- 1.1. **Name of the AuthorityGreen Bank**. The name of the AuthorityGreen Bank shall be, in accordance with the Statute, the "~~Clean Energy Finance and Investment~~ AuthorityConnecticut Green Bank".
- 1.2. **Office of the AuthorityGreen Bank**. The office of the AuthorityGreen Bank shall be maintained at such place or places within the State of Connecticut as the Board may designate.

**ARTICLE II**  
**BOARD OF DIRECTORS**

- 2.1. **Powers.** The powers of the AuthorityGreen Bank are vested in and exercised by a Board of Directors which may exercise all such authority and powers of the AuthorityGreen Bank and do all such lawful acts and things as are necessary to carry out the Comprehensive Plan and the purposes of the AuthorityGreen Bank as provided in the Resolution of Purposes, or as are otherwise authorized or permitted by the Statute or other provisions of the General Statutes, including the authorization of expenditures and use of funds from the Clean Energy Fund created by Section 16-245n(c) of the General Statutes, formerly known as the Renewable Energy Investment Fund, and the Green Connecticut Loan Guaranty Fund created by Section 16a-40f(b) of the General Statutes.
- 2.2. **Chairperson.** The Chairperson of the Board shall be appointed by the Governor. The Chairperson shall perform the duties imposed by the Statute, these Bylaws, and by resolution of the Board, and shall preside at all meetings of the Board which he or she attends. At each meeting the Chairperson shall submit such recommendations and information as the Chairperson may consider appropriate concerning the business, affairs,

and policies of the [AuthorityGreen Bank](#). The Chairperson shall serve at the pleasure of the Governor but no longer than the term of office of the Governor or until the Chairperson's successor is appointed and qualified, whichever is longer.

2.3. **Vice Chairperson.** The Board shall elect from its members a Vice Chairperson. The Vice Chairperson shall perform the duties imposed by the Statute, these Bylaws, and by resolution of the Board. In the absence or incapacity of the Chairperson, the Vice Chairperson shall perform all the duties and responsibilities of the Chairperson. In the absence or incapacity of the Vice Chairperson, or in case of his or her resignation or death, the Board shall elect its members an acting Vice Chairperson during the time of such absence or incapacity or until such time as the Board shall elect a new Vice Chairperson. The Vice Chairperson shall serve until a successor is elected by the Board.

2.4. **Secretary.** A Secretary may be elected by the Board. The Secretary shall perform the duties imposed by the Statute, these Bylaws, and by resolution of the Board. In the absence or incapacity of the Secretary, or in case of a resignation or death, the Board shall elect from their number an acting Secretary who shall perform the duties of the Secretary during the time of such absence or incapacity or until such time as the Board shall elect a new Secretary. The Secretary shall serve until a successor is elected by the Board.

2.5. **Delegation of Powers.** The Board may, by resolution, delegate to the President or other officers of the [AuthorityGreen Bank](#) such powers of the [AuthorityGreen Bank](#) as they believe are necessary, advisable, or desirable to permit the timely performance of the functions of the [AuthorityGreen Bank](#) and to carry out the plans, policies, procedures, and decisions of the Board, except that such delegation shall not include any duties or

responsibilities required by the Statute or these Bylaws to be performed by the Chairperson or the Board or otherwise in conflict with law.

- 2.6. **Directors.** The Directors shall be appointed and serve as provided in the Statute.

### **ARTICLE III OFFICERS AND EMPLOYEES**

- 3.1. **Officers.** The Board shall have the power to create positions for such officers as it may deem to be in the interests of the AuthorityGreen Bank, and shall define the powers and duties of all such officers. All such officers shall be subject to the orders of the Board and serve at its pleasure. Such officers shall include a President and may include a Director of Finance and Chief Investment Officer, a General Counsel and such other officers as the Board may determine to be appropriate. The Board shall be responsible for determining or approving compensation for each officer.

- 3.2. **President.** The Board shall hire a President. The President shall be the chief executive officer of the AuthorityGreen Bank and shall have such duties and responsibilities as may be determined by the Board, except that the duties and responsibilities of the office of President shall not include those required by the Statute or these Bylaws to be performed by the Chairperson or the Board or otherwise in conflict with law. The President shall be a non-voting, *ex officio* member of the Board pursuant to the Statute. The Board may delegate to such other person or persons all or part of the duties of the President. The President may, with the approval of the Board, assign or delegate to the officers and employees of the AuthorityGreen Bank any of the powers that, in the opinion of the President, may be necessary, desirable, or appropriate for the prompt and orderly transaction of the business of the AuthorityGreen Bank.

- 3.3. **Acting President.** The Board may, by resolution adopted by a majority vote, appoint some other person to serve as Acting President and perform the duties of the President in the event of the death, inability, absence, or refusal to act of the President. The Acting President shall be subject to all of the same restrictions placed upon the President.
- 3.4. **Chief Investment Officer.** The Board may appoint a Chief Investment Officer (CIO). The CIO shall have such duties and responsibilities as may be determined by the Board, except that the duties and responsibilities of the office of CIO shall not include those required by the Statute or these Bylaws to be performed by the Chairperson or the Board or otherwise in conflict with law. The CIO shall not be a Director.
- 3.5. **General Counsel.** The Board may appoint a General Counsel. The General Counsel shall be the chief legal officer of the [AuthorityGreen Bank](#) and shall have such duties and responsibilities as may be determined by the Board, except that the duties and responsibilities of the office of General Counsel shall not include those required by the Statute or these Bylaws to be performed by the Chairperson or the Board or otherwise in conflict with law. The General Counsel shall not be a Director.
- 3.6. **Additional Officers and Other Personnel.** The [AuthorityGreen Bank](#) may from time to time employ such other personnel as it deems necessary to exercise its powers, duties, and functions pursuant to the Statute and any and all other laws of the State of Connecticut applicable thereto. The President shall develop a staffing plan which shall include without limitation a chart of positions and position descriptions for the [AuthorityGreen Bank](#), personnel policies and procedures, and related compensation levels. Such staffing plan may provide for officers of the [AuthorityGreen Bank](#) in addition to those specifically provided for in these Bylaws, and the appointment of such

officers shall be in the discretion of the President, except as the Board may otherwise determine. The President shall deliver the staffing plan to the Budget and Operations Committee for its review and approval pursuant to Article V, Section 5.3.2 hereof.

- 3.7. **Signature Authority; Additional Duties.** The President and officers of the AuthorityGreen Bank shall have such signature authority as is provided in the Authority'sGreen Bank's Operating Procedures, and as may from time to time be provided by resolution of the Board. The officers of the AuthorityGreen Bank shall perform such other duties and functions as may from time to time be required.

## ARTICLE IV BOARD MEETINGS

- 4.1. **Regular Meetings.** Regular meetings of the Board or any Committee for the transaction of any lawful business of the AuthorityGreen Bank shall be held in accordance with a schedule of meetings established by the Board or such Committee, provided that the Board shall meet at least six (6) times per calendar year.
- 4.2. **Special Meetings.** The Chairperson may, when the Chairperson deems it expedient, call a special meeting of the Board for the purpose of transacting any business designated in the notice of such meeting. The Committee Chair of any Committee may, when the Committee Chair deems it expedient, call a special meeting of such Committee for the purpose of transacting any business designated in the notice of such meeting.
- 4.3. **Legal Requirements.** All meetings of the Board or any Committee shall be noticed and conducted in accordance with the applicable requirements of the Statute and the Connecticut Freedom of Information Act, including without limitation applicable requirements relating to the filing with the Secretary of the State of any schedule of

regular meetings and notices of special meetings, meeting notices to Directors and Committee members, public meeting requirements, the filing and public availability of meeting agenda, the recording of votes and the posting or filing of minutes, the addition of agenda items at any regular meeting, and the holding of any executive session.

4.4. **Order of Business.** The order of business of any meeting of the Board or any Committee shall be as set forth in the agenda for such meeting, provided that the Board or Committee may vary the order of business in its discretion.

4.5. **Organization.**

4.5.1. At each meeting of the Board, the Chairperson, or in the absence of the Chairperson, the Vice Chairperson, or in the absence of both, a Director chosen by a majority of the Directors then present, shall act as Presiding Officer. The Secretary, or a staff member designated by the President, shall prepare or direct the preparation of a record of all business transacted at such meeting. Such record when adopted by the Directors at the next meeting and signed by the Chairperson or the Secretary shall be the official minutes of the meeting.

4.5.2. At each meeting of a Committee, the Committee Chair, or in the absence of the Committee Chair any other Committee member designated by the majority of the Committee members then present, shall act as Presiding Officer. The President, a staff member designated by the President, or any Committee member chosen by the Presiding Officer, shall prepare or direct the preparation of a record of the business transacted at such meeting. Such record when adopted by a majority of the Committee members in attendance at the next



meeting and signed by the Committee Chair shall be the official minutes of the Committee meeting.

4.6. **Attendance.** A Director or a member of a Committee may participate in a meeting of the Board or of such Committee by means of teleconference, videoconference, or similar communications equipment enabling all Directors and Committee members participating in the meeting to hear one another, and participation in a meeting pursuant to this Section shall constitute presence in person at such a meeting. Directors or their designees who miss more than three (3) consecutive meetings shall be asked to become more active on the Board. In the event of further absence, the Board may decide by majority vote to recommend to the appointing authority that the appointment be reconsidered.

4.7. **Quorum.**

4.7.1. A majority of the Directors then in office shall constitute a quorum for the transaction of any business or the exercise of any power of the AuthorityGreen Bank.

4.7.2. A majority of the Director-members of a Committee shall constitute a quorum, provided that, except in the case of an advisory committee, such quorum shall consist of a minimum of three (3) Directors, at least one (1) of which shall not be a State employee.

4.8. **Enactment.** When a quorum is present, an affirmative vote of a majority of Directors in attendance at Board or Committee meetings shall be sufficient for action, including the passage of any resolution, except as may otherwise be required by these Bylaws or applicable law. Non-Director members of any Committee may participate in the Committee's discussions and deliberations and may join in the Committee's

recommendations to the Board, but shall not have a vote on any matters as to which the Committee is exercising the powers of the Board, including without limitation, any funding decisions.

- 4.9. **Designation of Substitutes for Directors.** If authorized by the Statute, then a Director may appoint a designee to serve as the Director's representative on the Board with full power to act and to vote on that Director's behalf. For the purposes of maintaining consistency and efficiency in Board matters, alternating attendance between the Director and his or her designee is strongly discouraged. If not authorized by statute, then a Director may not name or act through a designee. An authorized appointment of a designee shall be made by filing with the Board a short bio of the designee, the designee's CV, and a certificate substantially similar to the following:

"Certificate of Designation

I, \_\_\_\_\_, a member of the Board of Directors of the ~~Clean Energy Finance and Investment Authority~~Connecticut Green Bank, do hereby designate \_\_\_\_\_ [Name & Title] to represent me at the meetings of the Board or committees thereof with full powers to act and vote on my behalf. This designation shall be effective until expressly revoked in writing.

\_\_\_\_\_  
[Name]"

## ARTICLE V COMMITTEES

- 5.1. **Delegation Generally.** The Board may delegate any and all things necessary or convenient to carry out the purposes of the ~~Authority~~Green Bank to three (3) or more

Directors, provided that at least one (1) of which shall not be a State employee, and, to the extent of powers, duties, or functions not by law reserved to the Board, to any officer or employee of the AuthorityGreen Bank as the Board in its discretion shall deem appropriate.

5.2. **Appointments; Quorum; Transaction of Business; Recordkeeping.**

5.2.1. **Appointments.** The Chairperson shall appoint all Committee Chairs. The Committee Chair need not be a Director on the Deployment Committee any *ad hoc* committee, or an advisory committee.

5.2.2. **Quorum.** If necessary to achieve a quorum at any meeting of a Committee other than an advisory committee, then the Chairperson or the Vice Chairperson may sit, participate, and vote as an alternate member of such committee at such meeting.

5.2.3. **Report of Committee Actions.** Each Committee shall report to the Board on such Committee's actions and activities at the regular Board meeting next following each Committee meeting.

5.2.4. **Recordkeeping.** Committee recordkeeping shall be in accordance with Article IV, Section 4.5.2 hereof.

5.3. **Standing Committees.** The AuthorityGreen Bank shall have ~~three (3)~~four (4) Standing Committees of the Board consisting of an Audit, Compliance, and Governance Committee, a Budget and Operations Committee, ~~and~~ a Deployment Committee, and a Joint Committee of the Energy Conservation Management Board and the Connecticut Green Bank. Each Standing Committee may form subcommittees in its discretion, but no

such subcommittee shall exercise powers of the Board unless authorized by the Board to do so.

**~~5.3.1.—~~Audit, Compliance, and Governance Committee.** The Audit, Compliance, and Governance Committee shall consist of no less than three (3) Directors appointed by the Chairperson on a biennial basis, at least one (1) of which shall not be a State employee. The principal functions, responsibilities, and areas of cognizance of the Audit, Compliance, and Governance Committee shall be as follows:

- (i) recommendation to the Board as to the selection of auditors; (ii) meetings with the auditors to review the annual audit and formulation of an appropriate report and recommendations to the Board with respect to the approval of the audit report; (iii) review of the audit and compliance findings of the Auditors of Public Accounts, and meetings with the staff auditors there as appropriate; (iv) review with the auditors, President, and senior finance staff of the adequacy of internal accounting policies, procedures and controls; (v) review of the sufficiency of financial and compliance reports required by statute; (vi) recommendation to the Board as to the selection of the ~~Authority's~~Green Bank's ethics liaison and ethics compliance officer(s); (vii) review of the adequacy of employee education and training on ethics and related legal requirements; (viii) review and approval of, and in its discretion recommendations to the Board regarding, all governance and administrative matters affecting the ~~Authority~~Green Bank, including but not limited to matters of corporate governance, corporate governance policies, committee structure and membership, management qualifications and evaluation, and Board and Standing Committee self-evaluation; (ix) oversight of the ~~Authority's~~Green Bank's legal compliance

programs, including but not limited to compliance with state contracting and ethics requirements; (x) management succession planning; (xi) oversight of any Director conflict of interest matters; (xii) as-needed review of any staff recommendations to the Board regarding the Authority's Green Bank's regulatory or policy initiatives including but not limited to the Comprehensive Plan and other clean energy regulatory or policy evidentiary matters

~~5.3.2.~~5.3.1. before the Public Utilities Regulatory Authority and other state and federal commissions and tribunals that may affect clean energy development and/or the Authority's Green Bank's statutory mandate; (xiii) acting as a resource to the appointing authorities with respect to the identification and recruitment of qualified and interested private sector Director candidates; and (~~vixvi~~) the exercise of such authority as may from time to time be delegated by the Board to the Audit, Compliance, and Governance Committee within its areas of cognizance.

~~5.3.3.~~5.3.2. **Budget and Operations Committee.** The Budget and Operations Committee shall consist of no less than three (3) Directors appointed by the Chairperson on a biennial basis, at least one (1) of which shall not be a State employee. Additionally, the Chairperson or the Vice Chairperson shall be a non-voting *ex officio* member of the committee, subject to the provisions of Article V, Section 5.2.2 hereof. The principal functions, responsibilities, and areas of cognizance of the Budget and Operations Committee shall be as follows: (i) to recommend and monitor compliance with prudent fiscal policies, procedures, and practices to assure that the Authority Green Bank has the financial resources

and financial strategy necessary to carry out its statutory responsibilities and mission, including oversight of the Authority's Green Bank's budget process, asset and liability management, asset risk management, insurance and loss prevention, and performance measurement; (ii) recommendation to the Board as to approval of the annual operating budget and plan of operation; (iii) oversight of space planning and office leases, systems, and equipment, and procedures and practices with respect to purchasing; (iv) to recommend and monitor compliance with policies, programs, procedures, and practices to assure optimal organizational development, establishment of policies, programs, procedures and practices to assure optimal organizational development, the recruitment and retention of qualified personnel and the just and fair treatment of all employees of the Authority Green Bank, including employment policies and practices, employee training, development, evaluation and advancement, employee compensation and benefits, and matters of employee separation and severance; (v) review and approval of the Authority Green Bank staffing plan as developed by the President; (vi) with respect to reallocation of amounts between approved budget line items in excess of ten thousand dollars (\$10,000) but not exceeding seventy-five thousand dollars (\$75,000) in total, approval of such reallocation; (vii) with respect to increases to the operating budget or unbudgeted disbursements in amounts in excess of ten thousand (\$10,000) but not exceeding seventy-five thousand (\$75,000), approval of such increases; and (viii) the exercise of such authority as may from time to time be delegated by the Board to the Budget and Operations Committee within its areas of cognizance.

5.3.4.5.3.3. **Deployment Committee.** The Deployment Committee shall consist of no more than six (6) members total, consisting of no less than three (3) Directors and up to three (3) non-Directors, all appointed by the Chairperson on a biennial basis, and at least one (1) of the Director-members shall not be a State employee. Additionally, the State Treasurer, or her or his designee, shall be a voting *ex officio* member of the committee. Additionally, the Chairperson or the Vice Chairperson shall be a non-voting *ex officio* member of the committee, subject to the provisions of Article V, Section 5.2.2 hereof. The non-Director members of the Deployment Committee shall each have expertise in such areas as: project finance, levelized cost of clean energy, investment banking, commercial lending, tax-exempt or tax-advantaged financing or municipal banking, or clean energy policy. The principal functions, responsibilities, and areas of cognizance of the Deployment Committee shall be as follows: (i) to recommend and monitor compliance with program, project, and investment guidelines, criteria, policies, and practices supporting the Authority's Green Bank's statutory mission and management of such by the Authority's Green Bank's professional staff; (ii) with respect to loans, loan guarantees, loan loss reserves, credit enhancements, debt support programs, debt, debt-like, grants, equity, near-equity, and related measurement and verification studies and evaluation audit funding requests, including but not limited to the On-Site Renewable Distributed Generation Program, the Residential Solar program, the Combined Heat and Power pilot program, the Anaerobic Digestion pilot program, and the Condominium Renewable Energy grant program, between

three hundred thousand dollars (\$300,000) and two million five hundred thousand dollars (\$2,500,000), evaluation and approval of such requests on behalf of the Board so long as such approval is within the Authority's Green Bank's approved Operations and Program Budget; (iii) with respect to loans, loan guarantees, loan loss reserves, credit enhancements, debt support programs, debt, debt-like, grants, equity and near-equity funding requests which exceed two million five hundred thousand dollars (\$2,500,000), evaluation of such requests and recommendation to the Board regarding such requests; (iv) oversight of policies and practices relating to the evaluation and recommendation of initial investments, follow-on investments, investment modifications and restructurings, and the sale or other disposition of investments by the Authority's Green Bank's professional investment staff; (v) oversight of policies and practices relating to investment management by the Authority's Green Bank's professional investment staff, including implementation of investment exit strategies; (vi) except to the extent of any investment powers expressly reserved to the Board itself in any resolution of the Board, to approve on behalf of the Board investments, follow-on investments, investment modifications and restructurings, and the sale or other disposition of investments; (vii) to review and recommend to the Board the issuance of bonds, notes or other obligations of the Authority Green Bank, and upon such approval, to sell, issue and deliver such bonds, notes or obligations on behalf of the Authority Green Bank; and (viii) the exercise of such other authority as may



from time to time be delegated by the Board to the Deployment Committee within its areas of cognizance.

**5.3.4. Joint Committee of the Energy Conservation Management Board and the**

**Connecticut Green Bank. The Standing Committee Related to the Joint**

**Committee of the Energy Conservation Management Board and the Board of**

**Directors of the Green Bank shall consist of ~~three~~ no more than (23) voting Directors**

**and (2) nonvoting members who shall be appointed by the Chairperson on a biennial**

**basis to serve on both this Standing Committee and the Joint Committee. Said**

**Directors of this Standing Committee shall be charged with joining with ~~three~~four**

**(43) members, no more than (2) voting Directors and (2) nonvoting members, from**

**the Energy Conservation Management Board to form the Joint Committee as**

**required pursuant to 16-245m(d)(2) of the General Statutes.**

**5.3.4.1. The principal functions, responsibilities and areas of cognizance of this**

**Standing Committee shall be as follows: (i) to work with the Joint**

**Committee to examine opportunities to coordinate the programs and**

**activities contained in the plan developed under section 16-245n (c) of**

**the General Statutes with the programs and activities contained in the**

**plan developed under section 16-245m(d)(1) of the General Statutes;**

**and (ii) to work with the Joint Committee to provide financing to**

**increase the benefits of programs funded by the plan developed under**

**section 16-245m(d)(1) of the General Statutes so as to reduce the long-**

**term cost, environmental impacts and security risks of energy in the**

**state.**

5.3.4.2. This Standing Committee, in consultation with and upon approval of the Joint Committee, is authorized to vote and allocate funding in an amount not to exceed three hundred thousand dollars (\$300,000.00) per program or project so long as such program or project is within the Green Bank's approved Operations and Program Budget, consistent with the Green Bank's Comprehensive Plan, within an approved program of the Board or Deployment Committee and consistent with the credit and investment guidelines, criteria, policies, and practices approved by the Board. No resolution of the Joint Committee to approve an expenditure of funds may be approved without an affirmative vote of at least two (2) ~~members~~voting Directors of the Connecticut Green Bank.

5.3.4.3. Notwithstanding anything contained in these Bylaws to the contrary, the Joint Committee may adopt its own bylaws which shall govern the conduct and operations of the Joint Committee. If there are conflicting provisions between these Bylaws and any bylaws adopted by the Joint Committee, these ~~Bylaws~~ shall be controlling.

5.3.5. Additional Standing Committees or *ad hoc* committees of the Board may be formed by the Board at its discretion by resolution setting forth the purposes and responsibilities of such additional Standing Committee or *ad hoc* committee. Each additional Standing Committee or *ad hoc* committee shall have at least three (3) members who are Directors, at least one (1) of which shall not be a State employee.

#### 5.4. **Advisory Committees.**

- 5.4.1. The Board may form such advisory committees as the Board in its discretion may determine to be appropriate to advise and assist the Board, any Standing Committee of the Board, or management of the AuthorityGreen Bank in the performance of its statutory responsibilities. Such advisory committees may include as members such individuals as may be knowledgeable in the subject matter whether or not Directors or employees of the AuthorityGreen Bank.
- 5.4.2. Members of an advisory committee who are not Directors or employees of the AuthorityGreen Bank shall be considered "members of an advisory board" for purposes of the Connecticut Code of Ethics for Public Officials.
- 5.4.3. Public confidence in the recommendations and other actions of an advisory committee requires that advisory committee members avoid both actual conflicts of interest and situations that might give the appearance of a conflict of interest. It is to be expected, however, that many advisory committee members will have outside business or professional interests relating to the Authority'sGreen Bank's statutory mission. It is not intended that such outside business or professional interests be considered a conflict of interest, provided that an advisory committee member shall not participate in any deliberation or vote, and shall not take any other affirmative action as an advisory committee member, with respect to a matter in which such member has an interest which is in substantial conflict with the proper discharge of the duties and responsibilities of membership on the advisory committee. For this purpose, the determination of whether an advisory committee member has an interest which is in

substantial conflict with the duties and responsibilities of membership on the advisory committee shall be made in the same manner as provided in Section 1-85 of the Connecticut General Statutes for conflicting interests of public officials. In addition to disclosures required by law, the existence and nature of any such substantial conflict shall be promptly disclosed to the Committee Chair.

## **ARTICLE VI FISCAL YEAR**

- 6.1. **Fiscal Year.** The fiscal year of the ~~Authority~~Green Bank shall extend from July 1 through the following June 30 except as the same may be otherwise determined by resolution of the Board.

## **ARTICLE VII CONFLICTS OF INTEREST**

- 7.1. Public confidence in the recommendations and other actions of the Board and Committees requires that Directors avoid both actual conflicts of interest and situations that might give the appearance of a conflict of interest. Given the statutory qualifications for membership on the Board, it is to be expected, however, that some Directors will have outside business or professional interests relating to the ~~Authority's~~Green Bank's statutory mission. It is not intended that such outside business or professional interests be considered a conflict of interest, provided that a Director shall not participate in any deliberation or vote, and shall not take any other affirmative action as a Director or Committee member, with respect to a matter in which such Director has an interest which is in substantial conflict with the proper discharge of the duties and responsibilities of

membership on the Board or such Committee. For this purpose, the determination of whether a Director has an interest which is in substantial conflict with the duties and responsibilities of membership on the Board or a Committee shall be made in the manner provided in Section 1-85 of the Connecticut General Statutes for conflicting interests of public officials. The existence and nature of any potential conflict of interest shall be promptly disclosed to the Chairperson (or, in the case of the Chairperson, to the Vice Chairperson) and otherwise as may be required by Section 1-86 of the Connecticut General Statutes.

- 7.2. With respect to potential conflicts of interest, as defined in Section 1-86(a) of the Connecticut General Statutes and pursuant thereto and pursuant to Section 1-81-30(c) of the Regulations of Connecticut State Agencies, the Member shall either (1) excuse himself or herself from participating in any deliberation or vote on the matter and may not otherwise take any affirmative action on the matter or (2) shall prepare a written statement prepared under penalty of false statement describing the matter requiring action and the nature of the potential conflict and explaining why, despite the potential conflict, such Member is able to vote and otherwise participate fairly, objectively, and in the public interest, and shall deliver a copy of such statement to the Office of State Ethics and shall enter a copy of the statement in the minutes of the Board or committee, as applicable.
- 7.3. In addition to the steps described in Section 7.1 and 7.2, above, a conflicted or potentially conflicted Director:
  - 7.3.1. is strongly encouraged to leave the room during discussion and vote on the matter at hand; and

- 7.3.2. shall not participate in such discussion and vote; and
- 7.3.3. shall not have access to non-public confidential information regarding the matter at hand.

## **ARTICLE VIII COMPENSATION**

- 8.1. No Director or Committee member shall at any time receive or be entitled to receive any compensation for the performance of his or her duties as a Director, but may be reimbursed by the AuthorityGreen Bank for reasonable and necessary expenses incurred in the performance of such duties.

## **ARTICLE IX PARLIAMENTARY AUTHORITY**

- 9.1. Robert's Rules of Order, current revised edition, shall govern the proceedings of the Board when not in conflict with these Bylaws.

## **ARTICLE X ROLE OF CONNECTICUT INNOVATIONS, INC.**

- 10.1. **For Administrative Purposes Only.** Pursuant to the Statute, the AuthorityGreen Bank is within Connecticut, Innovations, Incorporated, for administrative purposes only. The relationship between the AuthorityGreen Bank and Connecticut Innovations, Inc., will be governed by the Statute, Conn. Gen. Stat. § 4-38f as if applicable to the relationship between the AuthorityGreen Bank and Connecticut Innovations, Incorporated, and other applicable law, and shall be memorialized in a contract for services.

## ARTICLE XI AMENDMENT

- 11.1. **Amendment or Repeal.** These Bylaws may be amended or repealed or new Bylaws may be adopted by the affirmative vote of a Super Majority of the Directors then in office.
- The AuthorityGreen Bank may adopt rules for the conduct of its business, and the adoption of such rules shall not constitute an amendment of these Bylaws.

## ARTICLE XII DEFINITIONS

- 12.1. **Definitions.** Unless the context shall otherwise require, the following words and terms shall have the following meanings:
- 12.1.1. "AuthorityGreen Bank" means the ~~Clean Energy Finance and Investment Authority~~ Connecticut Green Bank, as created and existing pursuant to the Statute.
- 12.1.2. "Board" means the board of directors of the AuthorityGreen Bank appointed and serving pursuant to the Statute.
- 12.1.3. "Chairperson" means the Chairperson of the Board appointed pursuant to the Statute.
- 12.1.4. "Committee" means any committee of or formed by the Board, including any Standing Committee, *ad hoc* committee, or advisory committee.
- 12.1.5. "Committee Chair" means the Chairperson of a Committee.
- 12.1.6. "Comprehensive Plan" means the plan developed by the AuthorityGreen Bank pursuant to section 16-245n(c) of the General Statutes.
- 12.1.7. "Connecticut Freedom of Information Act" means the Connecticut Freedom of Information Act, Connecticut General Statutes § 1-200 *et seq.*, as amended.

- 12.1.8. "Director" means a voting member of the Board appointed pursuant to the Statute.
- 12.1.9. "General Statutes" means the Connecticut General Statutes, as amended.
- 12.1.10. "Majority", whether capitalized or lowercase, means one more than half.
- 12.1.11. "President" means the President of the AuthorityGreen Bank hired by and serving at the pleasure of the Board of Directors of the AuthorityGreen Bank.
- 12.1.12. "Presiding Officer" has the meaning attributed to that term in Article IV, Section 4.5 of these Bylaws.
- 12.1.13. "Resolution of Purposes" means a resolution of the Board adopted pursuant to the penultimate sentence of Section 16-245n(d) of the General Statutes.
- 12.1.14. "Secretary" means the Secretary of the Board elected pursuant to the Statute and these Bylaws.
- 12.1.15. "Standing Committee" means a Standing Committee established by these Bylaws or another standing committee appointed by the Board for a specified period of time for the purpose of carrying out one or more functions of the AuthorityGreen Bank.
- 12.1.16. "Statute" means Connecticut General Statutes § 16-245n, as amended.
- 12.1.17. "Super Majority" means two thirds rounded up to the next whole integer.
- 12.1.18. "Vice Chairperson" means the Vice Chairperson of the Board elected pursuant to these Bylaws.

### **ARTICLE XIII**

### **AUTHORITY**

- 13.1. These Bylaws are adopted pursuant to the Statute and effective as of May 18, 2012.





~~CLEAN ENERGY FINANCE AND INVESTMENT  
AUTHORITY~~CONNECTICUT GREEN BANK

OPERATING PROCEDURES

PURSUANT TO

Section 16-245n of the  
Connecticut General Statutes

Adopted December 16, 2011

## I. DEFINITIONS

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

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

## II. GENERAL PURPOSES

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

### **III. GOVERNANCE**

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

### **IV. ADMINISTRATION**

The affairs of the [AuthorityGreen Bank](#) shall be administered in accordance with applicable law, the Bylaws, these Operating Procedures and other administrative policies as may be adopted by the President in consultation with the Board. The Board shall appoint a President and such other officers as provided in the Bylaws. Under the direction of the Board, such officers shall conduct the business of the [AuthorityGreen Bank](#) and shall have such authority as is conferred by applicable law, the Bylaws, these Operating Procedures, and the Board. References in these Operating Procedures to approval by the Board shall mean and include approval by the Board or by any duly constituted committee thereof authorized to act on behalf of the Board pursuant to the Bylaws of the [AuthorityGreen Bank](#).

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

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

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

The Annual Operating Budget shall incorporate the [AuthorityGreen Bank](#)'s Annual Plan of Operation by specifying operating, programmatic, investment, and other expenses for the forthcoming fiscal year.

VI. **COMMUNITY DEVELOPMENT FINANCIAL INSTITUTION**

The [AuthorityGreen Bank](#) may seek to qualify as a Community Development Financial Institution under Section 4702 of the United States Code. If approved as a Community Development Financial Institution, then the [AuthorityGreen Bank](#) would be treated as a qualified

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

## VII. PERSONNEL POLICIES

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

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

Whenever possible, the [AuthorityGreen Bank](#) shall maintain an identifiable career path for each class of positions on the schedule of positions approved by the Board. If the President determines it to be appropriate, then a current employee's position may be reclassified to another position within said career path. New positions approved by the Board and existing positions that become

available as a result of a current employee vacating such position shall be posted internally and, if the President determines it to be appropriate, then publicly advertised in a manner reasonably designed to reach a range of possible applicants. A current employee shall be eligible for reclassification or promotion to an existing or new position only if such employee has at least six (6) months of service with the AuthorityGreen Bank and meets the minimum qualifications for such position.

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

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

- (a) ~~1.~~ aA compensation plan, which shall consist of sufficient salary grades to provide such compensation rates as may be determined to be necessary or desirable for all job

classifications within the ~~Authority~~Green Bank, and which may include an incentive compensation program for all jobs classifications;

~~(b)~~—

~~(a)~~—

~~(e) 2.~~—aAn employee benefits program, which may include, but is not limited to, vacation days, holidays, sick days, group health, life, and disability insurance, tuition reimbursement, length of service awards and other benefits, including eligibility criteria and benefit levels;

~~(d)~~—

~~(b)~~—

~~(e) 3.~~—aA performance evaluation system, which may be used to determine merit increases in salary and incentive compensation levels;

~~(f)~~—

~~(c)~~—

~~(g) 4.~~—pPolicies with respect to compensatory time, flex-time, and telecommuting;

~~(h)~~—

~~(d)~~—

~~(i) 5.~~—pPolicies with respect to severance pay and benefits;

~~(j)~~—

~~(e)~~—

~~(k) 6.~~—pPolicies with respect to business and travel reimbursement; and

~~(l)~~(f) \_\_\_\_\_



(m)(g) ~~7.~~ ~~Other~~ reasonable compensation and employee benefits programs and policies as the Board determines to be necessary and appropriate to attract and retain qualified employees.

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

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

Coordination with and Administration by Connecticut Innovations, Incorporated: To the extent permitted by any contract for administrative support and services between the [AuthorityGreen Bank](#) and Connecticut Innovations, Incorporated, personnel policies, compensation plans, and benefit programs and policies of the [AuthorityGreen Bank](#) may be coordinated and/or combined with, and administered by, Connecticut Innovations, Incorporated, subject to appropriate cost sharing.

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

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

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

wherever possible bids or proposals shall be solicited from at least three (3) qualified parties. The requirements of this subsection shall not be applicable to transactions entered into by the AuthorityGreen Bank primarily for the purpose of providing financial assistance pursuant to Articles XII, XIII and XIV of these Operating Procedures. To the extent permitted by any contract for administrative support and services between the AuthorityGreen Bank and Connecticut Innovations, Incorporated, space, systems, supplies and other property, goods or services necessary for the business operations of the AuthorityGreen Bank may be provided by Connecticut Innovations, Incorporated, subject to appropriate cost sharing, and in such cases the procurement procedures of Connecticut Innovations, Incorporated shall apply thereto.

#### **IX. CONTRACTING FOR PROFESSIONAL SERVICES**

The AuthorityGreen Bank, acting through the President or another duly authorized officer, shall have the authority to engage accountants, attorneys, appraisers, financial advisers, investment advisors, underwriters, investment managers, investment bankers, brokers, architects, construction managers, engineers, and other consultants and professionals on any terms necessary or incidental to the carrying out of the purposes of the AuthorityGreen Bank. In the absence of a conflict of interest, such consultants and professionals may be those also providing services to Connecticut Innovations, Incorporated.

Procurement Procedures: Contracts for professional services shall be awarded by the AuthorityGreen Bank in such manner, including on the basis of a sole-source procurement, as the Board determines to be appropriate and in the best interests of the AuthorityGreen Bank in the

circumstances, provided that (i) for such contracts requiring an expenditure by the [AuthorityGreen Bank](#) up to and including seventy-five thousand dollars (\$75,000) over a period of one (1) fiscal year, the President has sole approval authority; (ii) for such contracts requiring an expenditure by the [AuthorityGreen Bank](#) over seventy-five thousand dollars (\$75,000) and up to and including one hundred fifty thousand dollars (\$150,000) over a period of one (1) fiscal year, the President and the Chairperson must both approve the expenditure; and (iii) for such contracts requiring an expenditure by the [AuthorityGreen Bank](#) of over one hundred fifty thousand dollars (\$150,000), such contract shall, whenever possible, be awarded on the basis of a process of competitive negotiation where proposals are solicited from at least three (3) qualified parties. To the extent permitted by any contract for administrative support and services between the [AuthorityGreen Bank](#) and Connecticut Innovations, Incorporated, professional services may also be provided by consultants and professionals selected by and under contract to Connecticut Innovations, Incorporated, subject to appropriate cost sharing. The provisions of Section 1-127 of the General Statutes shall apply to the engagement of auditors by the [AuthorityGreen Bank](#).

#### **X. STATE CONTRACTING REQUIREMENTS**

Any solicitation of bids or proposals by the [AuthorityGreen Bank](#), and any award of a contract by the [AuthorityGreen Bank](#), shall be subject to all state procurement and contracting requirements applicable to quasi-public agencies of the state, including without limitation the following to the extent applicable in the circumstances:

- (a) Section 9-612 of the General Statutes, as amended, relating to campaign contributions by state contractors and their principals and related notices to state contractors and prospective state contractors;
- (b) Section 4-252 of the General Statutes relating to affidavits as to gifts from contractors under certain large state contracts;
- (c) Section 4a-81 of the General Statutes relating to affidavits with respect to consulting fees;
- (d) Section 3-13l of the General Statutes relating to the prohibition of finder's fees in connection with investment transactions;
- (e) Section 3-13j of the General Statutes relating to the disclosure of third party fees attributable to investment services contracts;
- (f) Section 4-61dd of the General Statutes relating to whistleblower protections; and
- (g) Section 4a-60 and 4a-60a of the General Statutes relating to non-discrimination in state contracting and documentation of contractor adoption of a corporate policy supporting the non-discrimination agreements and warranties required by Sections 4a-60 and 40a-60a.

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

Funding Sources:

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

~~(a) Funding Sources:~~

~~(b) (i)~~—Funds repurposed from existing programs providing financing support for clean energy projects, provided any transfer of funds from such existing programs shall be subject to approval by the General Assembly and shall be used for expenses of financing, grants, and loans;

~~(a)~~

~~(e)~~

~~(d) (ii)~~—Any federal funds that can be used for the purposes specified in Section 16-245n(c) of the General Statutes;

~~(b)~~

~~(e)~~

~~(f) (iii)~~—Charitable gifts, grants, and contributions, as well as loans from individuals, corporations, university endowments, and philanthropic foundations;

~~(c)~~

~~(g)~~

~~(h) (iv)~~—Earnings and interest derived from financing support activities for clean energy projects backed by the ~~Authority~~Green Bank;

~~(d)~~

~~(i)~~

~~(j)~~ ~~(v)~~ — If and to the extent that the AuthorityGreen Bank qualifies as a Community Development Financing Institution under Section 4702 of the United States Code, then funding from the Community Development Financing Institution Fund administered by the United States Department of Treasury, as well as loans from and investments by depository institutions seeking to comply with their obligations under the United States Community Reinvestment Act of 1977; and

~~(e)~~

~~(k)~~

~~(f)~~ ~~(vi)~~ — The AuthorityGreen Bank may enter into contracts with private sources to raise capital. The average rate of return on such debt or equity shall be set by the Board.

#### Procedures of General Applicability to Financial Assistance:

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

~~(a)~~

~~(b)~~

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

~~(b)~~

~~(d)~~ —

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

(c)

~~(f)~~ —

~~(g)~~ ~~(d)~~ — The AuthorityGreen Bank shall make information regarding the rates, terms, and conditions for all of its financing support transactions available to the public for inspection, including formal annual reviews by both a private auditor conducted pursuant to Section 16-245n(f)(2) of the General Statutes and the Comptroller, and providing details to the public on the AuthorityGreen Bank's Web site; provided that public disclosure shall be restricted for patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may cause commercial harm to a nongovernmental recipient of such financing support and for other information exempt from public records disclosure pursuant to Section 1-210 of the General Statutes.

(d)

~~(h)~~ —

~~(i)~~~~(e)~~ ~~(e)~~ — Any entity that receives financing for a clean energy project from the Clean Energy Fund (Fund) shall provide the board an annual statement, certified as correct by the chief financial officer of the recipient of such financing, setting forth all sources and uses of funds for such project in such detail as may be required by the AuthorityGreen Bank. The AuthorityGreen Bank shall maintain any such audits for not less than five (5) years. Residential projects for buildings with one to four dwelling units



are exempt from this and any other annual auditing requirements, except that residential projects may be required to grant their utility companies' permission to release their usage data to the [AuthorityGreen Bank](#).

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

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

### Competitive Selection and Award

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

Issuance of RFP: A request for proposals (RFP) shall be published or distributed in a manner that the [AuthorityGreen Bank](#) determines will promote broad participation in the

competitive process. Deadlines for particular stages in the competitive selection process will be set forth in the RFP. Notice of the RFP shall be posted on the Web site of the AuthorityGreen Bank, may be published in one or more major daily newspapers published in the State, and may also be posted on the Web site of the Connecticut Department of Administrative Services. The RFP itself shall also be posted on the Web site of the AuthorityGreen Bank and shall be mailed to or otherwise made available to interested parties in a reasonable manner.

Eligibility: Each RFP shall be ~~authorized by resolution of the Board and~~ issued pursuant to guidelines established by the AuthorityGreen Bank consistent with ~~such Board authorization~~ the AuthorityGreen Bank's Comprehensive Plan and Annual Operating Budget. Such guidelines shall at a minimum set forth: ~~(4i)~~ proposer qualification requirements; ~~(ii2)~~ project eligibility criteria; ~~(3iii)~~ the nature and amount of financial assistance available from the AuthorityGreen Bank under the program; ~~(iv4)~~ the principal selection criteria; ~~(5v)~~ any mandatory terms and conditions under which such funding is available; ~~(6vi)~~ applicable application, processing, or other program fees; ~~(7vii)~~ the process by which proposals will be considered and acted upon. Such guidelines may be modified, in whole or in part, from time to time and at any time by the AuthorityGreen Bank, consistent with the authorizing resolution of the Board.

Selection Criteria: Selection criteria shall include, as applicable, ~~(4i)~~ the eligibility of the proposer; ~~(2ii)~~ the proposer's qualifications and experience; ~~(3iii)~~ the financial feasibility of the project, including the availability and firmness of required financing; ~~(iv4)~~ the cost-effectiveness of the project; ~~(v5)~~ the technological characteristics of the project, including the potential for technological improvements and advancements; the project's

operational feasibility and commercial applicability; (vi6) the jobs created by the project; (vii7) the environmental benefits stemming from the project; and (viii8) the contributions to be made by the project toward the statutory purposes of the AuthorityGreen Bank and the furtherance of the Comprehensive Plan. Other selection criteria may be established for any RFP, and any weighting of selection criteria shall be in the discretion of the AuthorityGreen Bank ~~acting pursuant to the authorizing resolution of the Board as~~ provided in such RFP. If appropriate in the circumstances, then an RFP may be first issued as a request for qualifications, following which those respondents found to be qualified are invited to respond to a final RFP.

Selection Process: The selection process shall be designed to provide for a fair and thorough evaluation of each eligible and qualified proposal, and shall be described in the RFP. The selection process may include the use of a review or scoring team, which may include members of any advisory committee, members of the staff of the AuthorityGreen Bank, and independent members with relevant industry, academic, or governmental experience. No member of any such review or scoring team shall have any financial or other personal interest in any proposed project. Any such review or scoring team shall act in an advisory capacity only and shall not constitute a committee or subcommittee of the Board, and the members of any such review or scoring team shall not be deemed to be public officials as a result of their service thereon. If the AuthorityGreen Bank determines that the responses to the RFP have been insufficient in number or quality to achieve the objectives of a competitive selection and award process or otherwise determines it to be in the best interest of the AuthorityGreen Bank, then the RFP may be extended, withdrawn and reissued, or cancelled at any time.

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

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

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

the scope or terms of the proposal but may include such other matters or different terms as the AuthorityGreen Bank may determine to be in the best interests of the

AuthorityGreen Bank, ~~acting pursuant to the authorizing resolution of the Board.~~

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

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

State Contracting Requirements: Any RFP shall be subject to, and any definitive financing or contracting documents shall include, such provisions as may be required by applicable laws or executive orders, including with respect to non-discrimination and affirmative action.

Other Terms and Conditions: Any RFP may be subject to and include such other terms and conditions, not inconsistent with the requirements of these procedures, as the

AuthorityGreen Bank may determine in its discretion to be appropriate and in the best

interests of the ~~AuthorityGreen Bank~~, consistent with the authorizing resolution of the Board.

#### Programmatic Selection and Award

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

Program Guidelines: Each such program shall be authorized by resolution of the Board and operated and administered by the ~~AuthorityGreen Bank~~ pursuant to program guidelines established by the ~~AuthorityGreen Bank~~ consistent with such Board authorization, which shall at a minimum set forth: (4i) applicant qualification requirements; (2ii) project eligibility criteria; (3iii) the nature and amount of financial assistance available from the ~~AuthorityGreen Bank~~ under the program; (4iv) the principal selection criteria; (5v) any mandatory terms and conditions under which such funding is available; (6vi) the application process, including a standard application form; (7vii) applicable application, processing, or other program fees; and (8viii) the process by which applications will be considered and acted upon. Such program

guidelines may be modified, in whole or in part, from time to time and at any time by the [AuthorityGreen Bank](#), consistent with the authorizing resolution of the Board. A general description of each such program, including the applicable program guidelines, and all such modifications, if any, shall be posted on the Web site of the [AuthorityGreen Bank](#).

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

~~Timing of Consideration; Notice of Approval or Disapproval: While the processing time for applications may vary considerably based on the specific requirements of each program, applicants for financial assistance available under an Authority program will receive notice of approval or disapproval within one hundred twenty (120) days of the submission of a complete application (including receipt of such additional information as the Authority may reasonably request in order to complete its application review). Failure to act on a completed application within such one hundred twenty (120) day period shall be deemed disapproval. Such one hundred twenty (120) day period may be extended at the request of either the Authority or the applicant with the consent of the other.~~

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

#### Strategic Selection and Award

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



based on a finding that at least three (3) of the following characteristics are present and are of predominant importance to the AuthorityGreen Bank:

~~(a) a.~~ Special Capabilities: The opportunity is presented by a party with exceptional experience, expertise, or availability, or holding patent or other proprietary rights of special value to the AuthorityGreen Bank.

~~(a)~~

~~(b) b.~~ Uniqueness: The opportunity is one-of-a-kind by virtue of location, high visibility, and leverage with other already committed public or private funding or similar unique attributes.

~~(b)~~

~~(e) e.~~ Strategic Importance: The opportunity has exceptionally strong compatibility with the mission of the AuthorityGreen Bank, including the jobs created by the project or the environmental benefits stemming from the project, or offers the AuthorityGreen Bank an organizational role, participation in governance, a formative or other key role in the industry, high funding leverage potential, broad market reach, exceptional educational or public relations value, or similar special strategic advantages important to the AuthorityGreen Bank.

~~(c)~~

~~(d) d.~~ Urgency and Timeliness: There is an urgent need to act on the opportunity as a result of public exigency or emergency, or a strategically important opportunity would become unavailable as a result of delay, or it

would take an unacceptable length of time for a similar opportunity to reach the same level of readiness.

(d)

- (e) ~~e.~~ Multiphase Project; Follow-on Investment: The opportunity relates to the next phase of a multiphase proposal or the expenditure is necessary to support or protect an existing the AuthorityGreen Bank investment or initiative.

Other Requirements: Awards made by strategic selection and award shall to the extent applicable be otherwise subject to the same procedures set forth with respect to competitive selection and award under the headings “Negotiation”, “Award”, “Fees and Expenses”, “State Contracting Requirements”, and “Other Terms and Conditions”.

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

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

#### **XIV. SURPLUS FUNDS**

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

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

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

\* \* \*

## NOTICE OF INTENT TO AMEND OPERATING PROCEDURES

In accordance with Section 1-121 of the Connecticut General Statutes, notice is hereby given that the Clean Energy Finance and Investment Authority (“CEFIA”) proposes to amend its Operating Procedures.

*Summary of Written Procedures:* CEFIA is proposing the following revisions to its Operating Procedures. These changes clarify the authority of CEFIA’s President and revise certain competitive and programmatic selection and award procedures in the following ways:

- Grant the President authority to make adjustments as necessary in benefits programs regarding workplace flexibility (e.g., telecommuting and flex-time policies) in order to recruit and retain qualified applicants. The President’s authority to make such adjustments cannot result in an adverse budgetary impact.
- Clarify authorization requirements for requests for proposals (“RFP”) in the competitive selection and award process. Rescind the requirement that each RFP be authorized by resolution of the CEFIA Board of Directors (the “Board”) and instead require that each RFP be issued pursuant to guidelines established by CEFIA consistent with its Comprehensive Plan and Annual Operating Budget. Each award shall be subject to all necessary CEFIA approvals before execution, including approval by the Board or a duly authorized committee of the Board.
- Amend programmatic selection and award procedures by rescinding the 120 day deadline for notice of approval or disapproval of an application for financial assistance under any CEFIA program.

*Statement of Purpose:* The proposed amendments clarify the authority of the President in regard to employee policies and revise certain competitive and programmatic selection and award procedures.

Copies of the proposed revised procedures are available at CEFIA between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, by contacting Brian Farnen, General Counsel and Chief Legal Officer at 860.257.2892 or by email at [Brian.Farnen@ctcleanenergy.com](mailto:Brian.Farnen@ctcleanenergy.com). All interested parties may submit comments in connection with the proposed revisions to the Operating Procedures, within thirty days following publication of this notice, to Loyola French, Contract Administrator, CEFIA, 845 Brook Street, Rocky Hill, CT 06067, email: [Loyola.French@ctcleanenergy.com](mailto:Loyola.French@ctcleanenergy.com).

## Energy Efficiency Board (EEB) Suggestions on CEFIA Priorities for Financing (EEB approved, 2/19/14)

### C&I Priorities:

**Work with the EEB and the Companies to evaluate C&I financing models not currently offered under EnergizeCT.** The primary financing products for Connecticut C&I customers currently offered under EnergizeCT are SBEA and C-PACE. Given the eligibility requirements of SBEA (peak demand between 10kW and 200kW) and C-PACE (must be in a C-PACE town, need lender consent, must be cash-flow-positive from project completion, and projects ideally larger than \$150,000 according to c-pace.com guidelines), there are segments of the C&I market that will not qualify for either product. Given the roughly \$10,000 average loan amount under SBEA and the roughly \$800,000 average amount financed or approved thus far under C-PACE, many of these customers will be in the “mid-size” range. For example, a medium-sized business that wants to convert from oil to gas, install a new HVAC system, and implement efficiency measures may not have a financing solution under EnergizeCT. Certain financing products, such as commercial leasing, may work for at least some of these mid-size customers. CEFIA could help the EEB and the Companies to develop and incorporate financing solutions under EnergizeCT that meet the needs of C&I customers and market segments that are not fully covered by the available solutions. Market research on C&I financing is nearing completion and results are expected in Q2 2014, which will help inform which solutions are likely to be most effective.

**Work with the EEB and the Companies to maximize the use of C-PACE financing for CEEF projects, and to optimize the use of limited CEEF resources to support financial incentives.** The C-PACE product is designed to make the economics of a deal work with longer terms, cash-flow-positive project requirements, repayment through the property tax rather than as debt, and transferability from one customer to another when the property changes hands. These features are intended to allow financing that has a neutral or positive impact on customer budgets, potentially reducing the amount of additional “sweeteners” (other incentives or rebates) needed to close a deal. Still, some incentives may be needed to drive deeper savings; promote new technologies, high performance design, and effective energy management practices; and encourage improvements that have longer paybacks. The EEB, the Companies, and CEFIA should work together to determine how best to maximize the use of C-PACE financing in CEEF-related projects, more effectively coordinate program and customer services, and optimize the use of CEEF financial incentives for the C-PACE projects to make the best use of limited CEEF program funds.

**Assist the EEB and the Companies to explore alternative lower-cost capital sources for Small Business (SBEA) financing that reduce total net program costs, to be procured by the Companies (as a replacement source of capital) or by CEFIA.** The Small Business Energy Advantage (SBEA) program is a longstanding, successful, and award-winning program that uses a mix of incentives and 0% on-bill financing, which has proven successful in motivating customers to act in this difficult-to-address market segment. As such, the program structure and delivery mechanism should remain in place. The financing priority for SBEA is limited solely to identifying lower-cost capital that reduces and does not raise total program costs, which could be procured either by the Companies or by CEFIA. The financing aspect of the program currently relies upon utility shareholder capital with a weighted average cost of roughly 9.9%, which is bought down to the 0% rate offered to customers. The aim of this effort would be to secure capital that would be less expensive from an “all-in” standpoint (i.e., lower costs for interest rates, fees, and administrative costs combined).

### **Single-Family Residential Priorities:**

**Coordinate with the Companies and the EEB to ensure the effectiveness of single-family offerings under EnergizeCT.** The number of single-family energy efficiency financing offerings under EnergizeCT continues to grow. It now includes an 0% payment plan for certain qualified measures, a 2.99% comprehensive HES loan, the Smart-E “single-measure” product, the CHIF product for customers who do not qualify for Smart-E, the residential Furnace and Boiler product, and the Energy Conservation Loan product. With all of these products in the marketplace, it is critical that they be presented to customers in a way that is clear and meets their needs without creating undue confusion. Moreover, all of these products must continue to meet the financing objectives adopted by the EEB, namely that they be convenient, attractive, economical, and available to meet the needs of the targeted markets. The EEB and CEFIA have agreed in concept to move forward with a phased evaluation that will assess, among other things, whether these objectives are being met. The EEB expects to collaborate with CEFIA to scope out this evaluation process and to continue working on a day-to-day basis to ensure these key objectives are met as products are implemented.

### **Multifamily Priorities:**

**Coordinate with the EEB and the Companies to ensure that the needs of multifamily customers are adequately met.** The Companies and the Connecticut Housing Investment Fund (CHIF) have identified a need for multifamily project funding and have requested \$1 million in CEFIA capital, along with \$300,000 in credit enhancement from CEFIA to serve as a loan loss reserve. These funds would match \$1 million in loan capital that CHIF currently has on hand from the Opportunity Finance Network (OFN). By providing capital and credit enhancement for this product, CEFIA could assist the Companies in serving a market that has been historically difficult to reach.



# Memo

**To:** Energy Efficiency Board (EEB)

**From:** Bryan Garcia and Norma Glover (on behalf of the Board of Directors of the Connecticut Green Bank)

**CC:** Staff of the Connecticut Green Bank

**Date:** July 21, 2014

**Attachment:** Connecticut Green Bank – Comprehensive Plan (Fiscal Years 2015 and 2016)

**Re:** Response to the EEB Suggestions on the Green Bank Priorities for Financing

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The Board of Directors (BOD) of the Connecticut Green Bank (the Green Bank) appreciates the EEB suggestions on the Green Bank priorities for financing submitted to the Joint Committee of the Connecticut Energy Efficiency Fund (CEEF) and the Green Bank on April 23, 2014. The Green Bank completed the development of its programs and activities for its Comprehensive Plan for fiscal years 2015 and 2016 pursuant to Section 16-245n(c) of the CGS. As part of the planning process, and the subsequent approval of the Comprehensive Plan by the BOD of the Green Bank, this memo and the attached Comprehensive Plan outline our goals for the next two years which includes the input received from the EEB and your request for assistance with financing programs.

### **Commercial and Industrial Priorities**

The EEB identified three (3) areas of priority for financing with respect to the commercial and industrial (C&I) sector to work with and assist the EEB and the Companies (i.e. CL&P and UI), including:

1. Evaluating C&I financing models not currently offered under EnergizeCT;
2. Maximizing the use of commercial and industrial property assessed clean energy (C-PACE) financing for CEEF projects, and optimizing the use of limited CEEF resources to support financial incentives; and
3. Exploring alternative lower-cost capital sources for Small Business Energy Advantage (SBEA) financing to reduce total net program costs to be procured by the Companies as a replacement source of capital and/or by the Green Bank.

### **Priority #1**

With respect to the first priority, the Green Bank agrees to work with the EEB and the Companies to assess the market gaps for financing outside of the SBEA and C-PACE financing programs under EnergizeCT.

The Green Bank would propose the following process as a next step:

1. **Assess the Market** – identify what is the market? How big is the market? Who are the customers in the market? How do these customers differ from those in the SBEA and C-PACE programs? The market research completed by the EEB – the C-11 market research survey – should inform this process.
2. **Develop the Product** – determine an approach that uses a limited amount of ratepayer capital to attract multiples of low-cost and long-term private capital. Develop the box or identify the parameters that are acceptable to the EEB and the Green Bank that will be required of private capital providers to lend into this market.
3. **Attract the Capital** – put public capital to work more efficiently and effectively attract private capital investment in energy efficiency and renewable energy deployment. CEFIA has targeted \$5 million of Green Connecticut Loan Guaranty Fund bond funding in its FY15 budget to support this effort.
4. **Implement the Program** – once lower-cost private capital has been attracted, implement the program with contractors and consumers.

Through the Green Bank Comprehensive Plan, we have allocated \$50,000 in funds to support the development and implementation of this product – that is separate from the funds that CEEF should provide to this effort as well.

With regards to the team working on this product, here are the points of contact we suggest:

- **Connecticut Green Bank** – Jessica Bailey and Bert Hunter;
- **Companies** – Tim Simmonds (CL&P), Pat McDonnell (UI), and Roy Haller (UI); and
- **Consultants** – Les Tumidaj (C&I) and Chris Kramer (Finance).

The assessment of the market and subsequent development of the market will take place through the regular meetings of the Connecticut Green Bank and the Companies.

### Priority #2

With respect to the second priority, the Green Bank agrees to continue to work with the EEB and the Companies to maximize the use of C-PACE financing for CEEF projects while optimizing the use of limited CEEF resources to support financial incentives. C-PACE is a financing tool for CEEF and the Green Bank that allows us to use limited ratepayer resources to attract private capital investment in clean energy (i.e. energy efficiency and renewable energy) deployment in Connecticut. In fact, the Green Bank recently closed on the first securitization of commercial and industrial energy efficiency and renewable energy projects through C-PACE.<sup>1</sup>

With respect to optimizing the use of CEEF resources, the Green Bank would insist that CEEF not have different incentives or incentive levels for projects that use C-PACE financing (which is at present at least 80% funded by private capital with a target of 90% or more) versus those projects

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<sup>1</sup> "In a 'Watershed' Deal, Securitization Comes to Commercial Efficiency" by Nick Lombardi of Greentech Media (May 19, 2014).



that do not seek financing or finance through other capital providers. If incentives or incentive levels are to change (i.e., be reduced), then they should change for everyone in the market. To assist our joint efforts, we can look at the savings to investment ratio (SIR) and the technical underwriting process with Sustainable Real Estate Solutions through C-PACE to guide us towards optimizing commercial and industrial incentives. We can look at SIR scenarios with and without CEEF incentives to analyze the impacts of financing deeper retrofits alongside incentives.

The Green Bank staff will continue its ongoing collaboration with the Companies through monthly meetings, regular sharing of deal flow information, joint outreach efforts and marketing, and streamlined approvals of C-PACE applications with CEEF incentives.

With respect to the progress the Green Bank has been making on C-PACE implementation in Connecticut, here are a few updates:

- **Town Participation** – in only a year-and-a-half, 85 of Connecticut’s cities and towns have signed onto the C-PACE program enabling over 85% of the commercial and industrial market access to low-cost and long-term financing for their buildings.
- **Lender Consent** – as required by statute, there have been 22 different mortgage lenders that have provided consent for a C-PACE benefit assessment to be senior to their mortgage demonstrating their understanding of the importance of this financing to lower energy costs for the building owner and its occupants.
- **Cash Flow Positive** – as required by statute, each C-PACE project must have a savings to investment ratio greater than 1. Of the 38 projects approved to date with over \$28 million of capital, every project has met this requirement while delivering an average energy savings of between 30 to 50 percent – demonstrating how C-PACE financing is helping building owners do deeper energy retrofits.
- **Size of Projects** – the average size of a C-PACE project is \$700,000 with a range of \$50,000 to \$3,000,000. C-PACE is providing financing to small projects like efficient boilers for non-profit organizations (e.g., churches, YMCA’s and cultural organizations) to large projects like deep energy efficiency retrofits in combination with solar photovoltaic systems for commercial and industrial customers.

The Green Bank staff looks forward to continuing to work with the EEB and Companies to deliver deeper and deeper energy savings and renewable energy deployment for building owners throughout the state.

### Priority #3

With respect to the third priority, the Green Bank agrees to assist the EEB and the Companies to explore alternative lower-cost capital sources for SBEA financing that reduces total net program costs to be procured by the Companies and/or by the Green Bank. As noted, the Green Bank recognizes that the SBEA is a long-standing, successful, and award-winning program that provides on-bill financing to small commercial customers (i.e. peak demand between 10 kW to 200 kW) by using CEEF funds to buy down the interest rate of the utility shareholder capital from approximately 9.9% to 0.0% for a 4-year term loan. As long as the EEB and the Companies support the principle that “the ratepayer-supported C&LM financing products should be positioned in the market in such a way that

they do not undermine financing products offered by the private market,<sup>2</sup> and that private capital is competitively procured, then the Green Bank can more effectively assist in attracting lower-cost private capital investment.

The Green Bank and the EEB have an additional capital source opportunity through the Green Loan Guaranty Fund. Pursuant to Section 16a-40f of the CGS, the Green Bank is authorized to guarantee loans for eligible energy conservation projects for individuals, qualified nonprofit organizations, and small businesses. In consultation with the EEB, Connecticut Health and Education Finance Authority (CHEFA), DEEP, and OPM, the Green Bank can request \$5 million of general obligation bond funds a year – to a total of \$20 million – to be placed into a fund used to guarantee authorized loans under the program. A loan guaranty to private capital providers like credit unions, community banks, and commercial banks, can be used to attract low-cost and potentially long-term private capital. The Green Bank's Board of Directors approved of \$5 million in revenue for its FY 2015 budget to access the Green Loan Guaranty Fund. The Green Bank must work with CEEF and CHEFA to request these funds through the state bond allocation process.

It should be noted that CL&P is currently under an NDA for 3<sup>rd</sup> party financing for the SBEA so assistance from the Green Bank is not necessary.

The Green Bank proposes the following process as next steps:

1. **Meet with UI** – sit down with UI to assess what they want to see with regards to the Green Bank's involvement with the SBEA product.
2. **Develop the Concept** – determine an approach that uses a limited amount of ratepayer or public capital to attract multiples of low-cost and long-term private capital. Develop the box or identify the parameters that are acceptable to UI that will be required of private capital providers to lend into this market. Consider accessing the Green Loan Guaranty Fund to attract private capital investment.
3. **Attract the Capital** – put ratepayer capital (or public capital – i.e. Green Loan Guaranty Fund) to work to more efficiently and effectively attract private capital investment in energy efficiency and renewable energy deployment through UI's on-bill program.

#### **Single-Family and Multifamily Residential Priorities**

The EEB identified two (2) areas of priority for financing with respect to the residential sector to work with and assist it and the Companies, including:

4. Ensuring the effectiveness of single-family offerings under EnergizeCT; and
5. Ensuring that the needs of multifamily customers are adequately met.

#### **Priority #4**

With respect to the fourth priority, the Green Bank agrees to ensure the effectiveness of single-family offerings under EnergizeCT. We recognize that there is a longstanding history and back-and-forth between DEEP, CEEF and the Green Bank.<sup>3</sup> The Green Bank acknowledges that

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<sup>2</sup> Final Decision on the 2013-2015 C&LM Plan by the Department of Energy and Environmental Protection (October 13, 2013).

<sup>3</sup> Request from DEEP to CEFIA (November 21, 2012) – [click here](#)  
Letter from EEB Consultants to CEFIA (December 2, 2012) – [click here](#).  
Response from CEFIA to DEEP (December 17, 2012) – [click here](#).

there is a proliferation of financing offerings under EnergizeCT. The key points for the EEB to note are:

- **Comprehensive Energy Strategy** – the financing offerings of the Green Bank are designed to implement the full suite of strategies within the CES. From energy efficiency and renewable energy, to natural gas conversions and healthy home measures (i.e. asbestos removal, mold remediation, knob and tube wiring, etc.).
- **Private Capital** – the approach of the Green Bank is to use limited public resources to attract multiples of private capital investment in clean energy deployment in Connecticut. Creating a growing market that is less and less reliant on public funds over time is the focus of the Green Bank. Any evaluation of financing products and their costs must consider those that are subsidized, and the costs of those subsidies, versus those that are not.
- **Connecticut Green Bank** – the Governor and the Legislature established the Connecticut Green Bank to attract and deploy private capital to help the state meet its energy policy objectives. As long as private capital is not disadvantaged by having to compete with subsidized public capital, then confusion by contractors and customers can be avoided.

The Green Bank's Energize CT financing products (i.e. Smart-E Loan, CT Solar Loan, CT Solar Lease, Cozy Home Loan) provide contractors and consumers with easy access to affordable private capital that is convenient, attractive, economical and available – while at the same time allowing ratepayer subsidies to be reduced over time as the market grows. Note that the Green Bank does not consider the Smart-E Loan to be a “single measure” financing product.

The Green Bank looks forward to continuing to collaborate with the EEB and the Companies on consumer facing tools such as the financing wizard being developed for EnergizeCT.com to aid consumers in making smart decisions about financing. Additionally, the Green Bank looks forward to continued collaboration on evaluation approaches, focused initially on market transformation evaluations and then once programs are more established, impact and process evaluations. And we look forward to continuing to collaborate with the EEB and Companies on the joint OBR program.

#### Priority #5

With respect to the last priority, the Green Bank believes that coordination with the EEB and the Companies is absolutely critical to ensure that the needs of multifamily customers are adequately met. The Green Bank's BOD and staff recognize the challenges and complexities of this market segment as well as the importance of streamlining and mutually leveraging our respective programs, and are pursuing several strategies, including:

- **One-Stop Technical Assistance** – the Green Bank has partnered with New Ecology, Inc. (NEI) to provide assistance to owners of multifamily affordable housing (MFAH). Services can be secured as a one-stop-shop or individually. They include benchmarking and performance monitoring, energy assessments and audits, construction management, commissioning, as well as assistance in accessing financing for deeper upgrades. New Ecology is a nationally recognized leader in implementing energy improvements to MFAH.

They have been funded by the JPB Foundation to implement best practices nationally. NEI selected Connecticut as its first market, bringing \$1 million of funding into our market. The Green Bank, NEI and the Companies (as well as the Connecticut Housing Finance Agency (CHFA) are coordinating on this effort.

- **C-PACE Multifamily Loans** – Urban Ingenuity has been selected as the C-PACE multifamily housing partner to source projects that can be financed through C-PACE, providing technical assistance to owners in developing and submitting applications, and structuring and financing C-PACE eligible energy upgrades. Both affordable (CHFA financed) and market rate properties are being targeted. The Green Bank, Urban Ingenuity and the Companies are coordinating on opportunities in the pipeline.
- **Connecticut Housing Investment Fund (CHIF) Low-Income Multifamily Energy (LIME) Loan** – This unsecured loan product administered by CHIF and supported by the Green Bank with a \$300,000 loan loss reserve and an initial \$1 million capitalization is designed to meet the needs of MFAH that can't access C-PACE or other secured financing. This category includes HUD funded public housing, all FHA and HUD funded or insured properties, as well as many of the underserved 3- to 6-unit buildings in our large cities, which are often over 100 years old, and in great need of energy and other capital improvements. The Companies and CHIF approached the Green Bank with a request to support this loan product, and will be instrumental in identifying potential properties that can take advantage of this financing. CEFIA will continue to work with CHIF to help expand sources of capital for this loan fund.
- **Credit Enhancement RFP** – the Green Bank has \$4 million allocated to an open RFP for credit enhancements to support project or program level multifamily financing, with a focus on the affordable market.
- **CHFA-CEFIA Energy Demonstration Program** – the Green Bank and CHFA are partnered on 5 pilot projects to help inform underwriting and EM&V requirements more broadly within the CHFA portfolio. This Program will also result in a manual and resource list for MFAH owners seeking to navigate the energy retrofit process. The pilot is being undertaken on five master-metered properties previously identified by CHFA. The Pilot process includes, for each property, energy benchmarking and auditing, definition of project scope to include all cost effective energy measures, financing, implementation, commissioning, and post project energy performance monitoring and verification. The Green Bank, CHFA, NEI, Urban Ingenuity and the Companies are collaborating on these projects.
- **WINN-HUD Open Market ESCO** – the Green Bank has committed up to \$1.87 million to the Multifamily Energy Loan fund to facilitate energy savings agreement in the multifamily housing market (40-300 units). Winn Development was awarded a HUD grant to pilot this program. This pilot program has not yet achieved success and is being refocused, and quite frankly has been a challenging initiative to get up and running and make progress on.
- **MacArthur Foundation** – as a result of the Green Bank's leadership in clean energy finance, MacArthur Foundation has invited a \$5 million program related investment (PRI) proposal from the Green Bank to support its multifamily affordable housing initiatives. The Green Bank proposes to use a significant portion of these funds to finance remediation of critical health and safety issues that impede weatherization and deeper energy improvements to MFAH. The Green Bank, Companies, and members of the CT Healthy Homes Initiative will partner here.

- **Condominium Financing** – the Green Bank has allocated \$5 million in FY15 for market rate financing product development with an initial focus on condominiums. Condominiums are a prime target for natural gas conversions, particularly in communities that have previously been identified by the gas companies as having a large concentration of housing units on main with low use, and/or targeted for expansion of gas lines. The Green Bank seeks to work with the Companies on a pipeline of condo properties that need access to financing.

The Green Bank would ask the EEB and the Companies to continue to work together in the following areas:

1. To continue to collaborate on efforts to mutually leverage programs and streamline a holistic energy improvement process, making it easier for owners to access incentives, financing and other resources in a coordinated fashion.
2. To develop a comprehensive, statewide list of multifamily resources for the market (e.g. financing, incentives, programs, technical assistance, and infrastructure support); and
3. Coordinate on marketing efforts to the MFH sector as well as project pipeline review and processing.

**[PHOTO REDACTED]**

**██████████ A C-PACE Project in Bridgeport, CT**

<b>Address</b>	██████████ Bridgeport, CT			
<b>Owner</b>	██████████			
<b>Proposed Assessment</b>	\$1,811,461			
<b>Term (years)</b>	20			
<b>Term Remaining (months)</b>	Pending Construction Completion			
<b>Annual Interest Rate</b>	6%			
<b>Annual C-PACE Assessment</b>	\$157,794			
<b>Savings-to-Investment Ratio</b>	1.3			
<b>Average Debt-Service Coverage Ratio</b>	██████████			
<b>Loan-to-Value Ratio</b>	██████████			
<b>Projected Energy Saved and/or Generated</b>		EE	RE	Total
	Per year	262,670 kWh	811,707 kWh	1,074 MWh
	Over loan	2,037 MWh	14,851 MWh	16,888 MWh
<b>Estimated Cost Savings</b>	Per year	\$29,069/year	\$173,429/year	\$202,498/year
	Over loan	\$581,393	\$3,468,586	\$4,049,979
<b>Objective Function</b>	9.32 kWh of energy saved / clean energy generated per ratepayer dollar at risk			
<b>Location</b>	City of Bridgeport			
<b>Type of Building</b>	Industrial manufacturing and offices			
<b>Year of Build</b>	1968 with an addition in 1987			
<b>Building Size (total sf)</b>	170,000 sq. ft.			
<b>Served Available Market – within Municipality</b>	<.01% of the serviceable commercial sqftage of Bridgeport			
<b>Year Acquired by Current Owner</b>	2001			
<b>Appraised Value</b>	██████████			
<b>Status of Mortgage Lender Consent</b>	Pending			
<b>Proposed Project Description</b>	600 kW Solar PV Installation, LED lighting upgrades, wood gasifier and biodiesel backup generator			
<b>Est. Date of Construction Completion</b>	Pending closing			
<b>Current Status</b>	Pending Board of Directors approval			
<b>Energy Contractors</b>	██			
<b>Additional Comments</b>	* Per June 2014 appraisal. This figure is an as-complete valuation with the new solar installations. The as-is appraisal was ██████████			

**[Photo Redacted]**

**A C-PACE Project in East Hartford, CT**

<b>Address</b>	[Redacted] East Hartford CT, 06108			
<b>Owner</b>	[Redacted]			
<b>Proposed Assessment</b>	\$2,353,541*			
<b>Term (years)</b>	20			
<b>Term Remaining (months)</b>	Pending Construction Completion			
<b>Annual Interest Rate</b>	6%			
<b>Annual C-PACE Assessment</b>	\$205,013			
<b>Savings-to-Investment Ratio</b>	1.01			
<b>Average Debt Service Coverage Ratio</b>	[Redacted]			
<b>Loan-to-Value Ratio</b>	[Redacted]			
<b>Proposed Energy Saved and/or Generated (mmBTU)</b>		EE	RE	Total
	Per year	1,843 mmBTU	1,828 mmBTU	3,671 mmBTU
	Over loan	28,575 mmBTU	34,044 mmBTU	62,619 mmBTU
<b>Estimated Cost Savings</b>	Per year	\$45,701	\$87,976**	\$133,677**
	Over loan	\$914,026	\$1,759,517	\$2,673,543
<b>Objective Function</b>	30.6 kBTU per dollar of Green Bank capital at risk			
<b>Location</b>	Town of East Hartford, Hartford County			
<b>Type of Building</b>	Office – Large			
<b>Year of Build</b>	1981			
<b>Building Size (total sf)</b>	98,167 rentable sq. ft.			
<b>Served Available Market – within Municipality</b>	<1%			
<b>Year Acquired by Current Owner</b>	2006			
<b>As-Is Appraised Value</b>	[Redacted]			
<b>Status of Mortgage Lender Consent</b>	Pending refinancing with Thomaston Savings Bank			
<b>Proposed Project Description</b>	446 kW solar photovoltaic system; lighting, HVAC, and building management system upgrades			
<b>Est. Date of Construction Completion</b>	Pending closing			
<b>Current Status</b>	Pending Board of Directors approval			
<b>Energy Contractors</b>	[Redacted]			
<b>Additional Comments</b>	<p style="text-align: center;">* Including closing costs</p> <p style="text-align: center;">** Excluding tax benefits and data-center-to-office conversion</p> <p style="text-align: center;">*** As-stabilized appraised value is [Redacted] new appraisal pending</p>			





<p><b>Additional Comments:</b></p>	<ol style="list-style-type: none"><li>(1) Includes original [REDACTED] for the efficiency portion; additionally, [REDACTED] for PV and associated roof repair and cost of appraisal. CT Green Bank Deployment Committee approved up to [REDACTED] on July 2, 2013 and Lockheed Martin was able to negotiate with contractors to bring total cost under the [REDACTED] originally approved for the efficiency portion of the project.</li><li>(2) <b>This approval will be contingent upon an appraisal showing the LTV is [REDACTED].</b> The last appraisal was completed in 2003, and valued the building at [REDACTED]. Green Bank staff is confident that the appraisal will be well within underwriting guidelines. Using an assessed-value approach, the current LTV including both CPACE project phases would be roughly [REDACTED]. Incorporating the full construction value of the EE and solar only would bring LTV to [REDACTED]. Additionally, Flatiron has made significant other improvements to the building with environmental remediation and property tax abatement, detailed in the memo, both which greatly contribute to property value.</li><li>(3) This is an estimate based on the assessed value, and does not include any value attributable to the improvements. As discussed in (2), an as-complete appraisal will be required, and staff expects value to increase significantly.</li></ol>
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**[PHOTO REDACTED]**

**██████████ A C-PACE Project in Plainville, CT**

<b>Address</b>	██████████ Plainville, CT			
<b>Owner</b>	██████████			
<b>Proposed Assessment</b>	\$1,225,492 (1)			
<b>Term (years)</b>	19			
<b>Term Remaining (months)</b>	Pending Construction Completion			
<b>Annual Interest Rate</b>	5.9%			
<b>Annual C-PACE Assessment</b>	\$108,816			
<b>Savings-to-Investment Ratio</b>	1.05			
<b>Average Debt-Service Coverage Ratio</b>	██████████			
<b>Loan-to-Value Ratio</b>	██████████			
<b>Proposed Energy Savings and/or Produced</b>		EE (MMBtu)	RE (MMBtu)	Total (MMBtu)
	Per year	791	1,315	2,106
	Over loan	8,518	22,974	31,419
<b>Estimated Cost Savings</b>	Per year	\$22,983	\$90,368	\$113,322
	Over loan	\$436,681	\$1,716,991	\$2,153,133
<b>Objective Function</b>	0.026 MMBtu (6.4 kWh) generated and saved per ratepayer dollar at risk over the finance term.			
<b>Location</b>	Town of Plainville, Hartford County			
<b>Type of Building</b>	Manufacturing/Industrial Plant			
<b>Year of Build</b>	1970			
<b>Building Size (total sf)</b>	65,000			
<b>Served Available Market – within Municipality</b>	.01% of addressable commercial sqft in Plainville			
<b>Year Acquired by Current Owner</b>	1970			
<b>Assessed Value</b>	██████████			
<b>Status of Mortgage Lender Consent</b>	No Mortgage			
<b>Proposed Project Description</b>	324 kW roof mount solar PV, lighting upgrades to LEDs, HVAC management system			
<b>Est. Date of Construction Completion</b>	Pending closing			
<b>Current Status</b>	Pending Board of Directors approval			
<b>Energy Contractors</b>	██████████			
<b>Additional Comments</b>	<p>(1) Total cost is ██████████, with ██████████ two-year, interest-free loan from the SBEA program administered by CL&amp;P</p> <p>(2) ██████████ up to year 2, ██████████ for the remaining life of the loan</p> <p>(3) Based on ██████████ town tax assessor (2011). The C-PACE assessment will be subject to an as-complete appraisal</p>			

[PHOTO REDACTED]

**A C-PACE Project in Somers, CT**

<b>Address</b>	[REDACTED] Somers CT, 06071	
<b>Owner</b>	[REDACTED]	
<b>Proposed Assessment</b>	\$957,000	
<b>Term (years)</b>	20	
<b>Term Remaining (months)</b>	Pending Construction Completion	
<b>Annual Interest Rate</b>	5.5%*	
<b>Annual C-PACE Assessment</b>	\$79,993	
<b>Savings-to-Investment Ratio</b>	1.1	
<b>Average Debt-Service Coverage Ratio</b>	[REDACTED]	
<b>Loan-to-Value Ratio</b>	[REDACTED]	
<b>Proposed Energy Savings and/or Produced</b>	Per year	291,444 kWh
	Over Term of Financing	5,332 MWh
<b>Estimated Cost Savings</b>	Per year	\$52,827**
	Over Term of Financing	\$1,056,540
<b>Objective Function</b>	5.57. kWh per dollar of Green Bank capital at risk	
<b>Location</b>	Town of Somers, Tolland County	
<b>Type of Building</b>	Office - Medium	
<b>Year of Build</b>	1975	
<b>Building Size (total sf)</b>	48,360 sq ft	
<b>Served Available Market – within Municipality</b>	<1%	
<b>Year Acquired by Current Owner</b>	2008	
<b>As-Is Appraised Value</b>	[REDACTED]	
<b>Status of Mortgage Lender Consent</b>	Pending (Berkshire Bank)	
<b>Proposed Project Description</b>	250 kW Solar Photovoltaic System	
<b>Est. Date of Construction Completion</b>	Pending closing	
<b>Current Status</b>	Pending Board of Directors approval	
<b>Energy Contractors</b>	[REDACTED]	
<b>Additional Comments</b>	* Accessing lower interest rate due to pre-11/1/13 application ** Excluding tax benefits *** As-complete appraised value is [REDACTED]	

**[PHOTO REDACTED]**

**████████████████████ A C-PACE Project in Windsor, CT**

<b>Address</b>	████████████████████ Windsor, CT	
<b>Owner</b>	████████████████████	
<b>Proposed Assessment</b>	\$636,367	
<b>Term (years)</b>	14	
<b>Term Remaining (months)</b>	Pending Construction Completion	
<b>Annual Interest Rate</b>	5.4%	
<b>Annual C-PACE Assessment</b>	\$66,255	
<b>Savings-to-Investment Ratio</b>	1.42	
<b>Average Debt Service Coverage Ratio</b>	████████	
<b>Loan-to-Value Ratio</b>	████████████████████	
<b>Projected Energy Saved</b>		Energy Efficiency Measures
	Per year	2,830 MMBtu
	Over financing term	33,122 MMBtu
<b>Estimated Cost Savings</b>	Per year	\$90,518
	Over financing term	\$1,292,650
<b>Objective Function</b>	25.6 kBtu of energy saved per ratepayer dollar at risk	
<b>Location</b>	Town of Windsor	
<b>Type of Building</b>	Office	
<b>Year of Build</b>	1983	
<b>Building Size (total sf)</b>	62,000 sq. ft.	
<b>Served Available Market – within Municipality</b>	0.4%	
<b>Year Acquired by Current Owner</b>	2012	
<b>Appraised Value</b>	████████████████████	
<b>Status of Mortgage Lender Consent</b>	Pending	
<b>Proposed Project Description</b>	Lighting, HVAC, variable frequency motor drives, building mgmt systems	
<b>Est. Date of Construction Completion</b>	Pending closing	
<b>Current Status</b>	Pending Board of Directors approval	
<b>Energy Contractors</b>	████████████████████	
<b>Additional Comments</b>	* Per December 2012 appraisal, with an as-complete valuation	

# [PHOTO REDACTED]

## [REDACTED] A C-PACE Project in Sprague, CT

Note that the numbers in this memo assume the project is as-slated for April, 2014 Board of Director's meeting. With the recent [REDACTED], [REDACTED] is now in the negotiations process with two other fuel cell manufacturers to supply the equipment and a service contract.

While [REDACTED] has not yet finalized a replacement supplier, CT Green Bank staff felt it prudent to bring the project to the board, given the urgency: the project is large at over \$6M and therefore must go to the full board. The next scheduled regular Board meeting is not until October 17, 2014. Additionally, [REDACTED] LREC delivery begins October 1, 2014 per their contract with CL&P. Board approval will allow CT Green Bank staff to assist with the structuring of a revised contract, if necessary.

Due to this urgency, CT Green Bank staff proposes two viable options to the Board:

- 1) Approve the proposed \$6,015,892 C-PACE loan to finance a fuel cell installation at [REDACTED] manufacturing facilities at [REDACTED] Sprague, CT. Given [REDACTED] financial strength and operating performance, CT Green Bank staff is comfortable with the ability of the organization to support the assessment, subject only to an as-complete appraisal (detailed in the memo). The Board's approval for this option would also be contingent on the final project specifications meeting all standard C-PACE technical and statutory criteria (as well as the aforementioned as-complete appraisal). However, because material facts regarding this high dollar transaction are not known at this time, Green Bank staff would like to provide the alternative below.
- 2) Defer approval to a potential special meeting of the Board of Directors prior to the October 17 regular meeting once [REDACTED] selects an equipment provider.

<b>Address</b>	[REDACTED] Sprague, CT 06383			
<b>Owner</b>	[REDACTED]			
<b>Proposed Assessment</b>	\$6,015,892			
<b>Term (years)</b>	10			
<b>Term Remaining (months)</b>	Pending Construction Completion			
<b>Annual Interest Rate</b>	5%			
<b>Annual C-PACE Assessment</b>	\$771,804			
<b>Savings-to-Investment Ratio</b>	3.48			
<b>Average Debt-Service Coverage Ratio</b>	[REDACTED]			
<b>Loan-to-Value Ratio (1)</b>	[REDACTED]			
<b>Proposed Energy Savings and/or Produced</b>		<b>EE</b>	<b>RE</b>	<b>Total</b>
	Per year (MMBtu)	12,194	N/A	12,194

	Over loan (MMBtu)	243,880	N/A	243,880
Estimated Cost Savings (2)	Per year (\$)	\$1,047,124	N/A	\$1,047,124
	Life Cycle (\$)	\$20,942,475	N/A	\$20,942,475
Objective Function	126 kBTU of clean energy produced for each \$ of ratepayer capital at risk			
Location	Town of Sprague			
Type of Building	Manufacturing / Industrial Plant			
Year of Build	1964 (additions built in 1975, 1984, and 2008)			
Building Size (total sf)	108,790			
Served Available Market – within Municipality	27%			
Year Acquired by Current Owner	1984			
Appraised Value (3)	██████████			
Status of Mortgage Lender Consent	No Mortgage			
Proposed Project Description	<ul style="list-style-type: none"> <li>▪ Note this memo is based on an 800kW project from ██████████</li> <li>▪ TBD based on negotiations process with ██████████ and ██████████</li> <li>▪ Between 800kW and 1.4MW fuel cell installation</li> </ul>			
Est. Date of Construction Completion	Pending closing			
Current Status	Pending CT Green Bank Board of Directors approval			
Energy Contractors	██			
Additional Comments:	<p>(1) <b>Security Interest:</b> the Green Bank will require a first priority lien on and security interest in the fuel cell equipment including any warranties, O&amp;M and EPC contracts, agreements to sell electrical energy therefrom, the ZREC contract and any revenues therefrom as well as energy credits or environmental attributes available for sale and any proceeds from such sales.</p> <p>(2) <b>LREC:</b> ██████████ has contracted with CL&amp;P to sell LRECs (Low Emission Renewable Energy Credits) from the fuel cells at a rate of \$74.97/MWh for 15 years.</p> <p>(3) <b>As-Complete Appraisal:</b> In advance of closing, the Green Bank will require an as-complete appraisal that incorporates the fuel cell installation to better assess the project's security.</p>			



# Clean Energy Business Solutions

Version 4/05/2013

**Request Date: July 18, 2014**

**Company Name: Cartus Corporation**

**Complete Address: 40 Apple Ridge Road, Danbury, CT 06810**

**Contact Name: Joe Lacy**

**Contact Email: [jlacy@blsstrategies.com](mailto:jlacy@blsstrategies.com)**

**Contact Phone: 347-886-4846**

**CEFIA Funding Request: \$ 1,000,000**

## **Description of Strategic Value.**

Cartus is the industry leader in global mobility and workforce development support to organizations worldwide. Its global client base includes corporate, government and membership organizations of all sizes and types. Its broad base of services supports both managers and transferring employees with cost-effective, customized services. Cartus is part of [Realogy](#) Holdings Corp., a global leader in real estate franchising and provider of real estate brokerage, relocation, and settlement services. Cartus' worldwide corporate headquarters is in Danbury and they have locations through the U.S. and worldwide. They have over 3,000 employees worldwide.

Cartus' lease expires in CT and Texas at the same time. Over the past year, the company has been considering its options. With the assistance of the state incentives, the company has decided to lease additional space and completely renovate its current location in Danbury. Total project cost is \$15,404,092. This project will retain 1,275 jobs in CT and create an additional 200 over five years.

Now that the company has made the decision to remain and grow in CT, they are committed to making the building as energy efficient as possible. Improvements include the following:

- Replace the boilers at an estimated cost of \$262,000 aggregate (current boilers are 20-30 years old)
- Replace HVAC rooftop units at an aggregate cost of \$480,000
- Replacing cooling tower at an estimated cost of \$270,000

Other potential applicable costs:

- Elevator upgrade –existing ones are very inefficient. Cost \$170,000.
- Car charging station - \$27k
- May consider a back-up diesel generator for \$1M, but this is secondary scope



# Clean Energy Business Solutions

Version 4/05/2013

## **DECD Support Summary.**

DECD is providing a direct loan up to \$6,500,000 at 2% for ten years. Principal payments will be deferred for the first five years. The company will retain 1,275 jobs and create 200 new jobs within 5 years. The company will also receive up to \$1,000,000 in sales tax exemption from CT Innovations.





**CLEAN ENERGY**  
**FINANCE AND INVESTMENT AUTHORITY**

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

**To:** Connecticut Green Bank Board of Directors  
**From:** Mackey Dykes, Chief of Staff  
**CC:** Bryan Garcia, President and CEO  
**Date:** July 11, 2014  
**Re:** Clean Energy Business Solution Financial Assistance for Cartus

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Cartus is the industry leader in global mobility and workforce development support to organizations worldwide, providing logistical relocation support as well as intercultural and language training and consulting services. Its client base includes corporate, government, and membership organizations of all sizes and types. Cartus is part of Realogy Holdings Corp., a global leader in real estate franchising and provider of real estate brokerage, relocation, and settlement services. Cartus' worldwide corporate headquarters is in Danbury and they have locations throughout the U.S. and the world, with over 3,000 employees.

With leases expiring on their offices in Connecticut and Texas, Cartus has been considering their options, including moving to Texas. With the assistance of state incentives, the company has decided to remain in Connecticut, lease additional space and completely renovate its current location. This assistance will retain 1,275 jobs and create an additional 200 over 5 years.

**CLEAN ENERGY BUSINESS SOLUTIONS**

The Department of Economic and Community Development has requested \$1,000,000 (see Attachment A) in Clean Energy Business Solutions (CEBS) funding for Cartus. The CEBS funding will be used for the following energy saving measures in their renovation:

- Replace the current decades old boilers
- Replace HVAC rooftop units
- Replace cooling tower

Connecticut Green Bank will retain Celtic Engineering to as a technical consultant to inspect the project and verify and quantify the energy savings.

**RESOLUTION**

**RESOLVED**, that the President of the Connecticut Green Bank (the "Green Bank") and any other duly authorized officer of the Green Bank is authorized to execute and deliver a Clean Energy Business Solutions (CEBS) financial assistance award of \$1,000,000, to Cartus Corporation; 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 not later than three months from the date of this resolution.

Submitted by: Mackey Dykes, Chief of Staff



# Memo

**To:** Connecticut Green Bank Board of Directors  
**From:** Bert Hunter, EVP and CIO  
Alexandra Lieberman, Senior Manager of Clean Energy Finance  
**CC:** Bryan Garcia, Chief Investment Officer  
Brian Farnen, Chief Legal Officer  
Mackey Dykes, Chief of Staff  
Dale Headman, Director, Statutory & Infrastructure Programs  
Rick Ross, Assistant Director, Statutory & Infrastructure Programs  
**Date:** July 11, 2014  
**Re:** Downtown Bridgeport District Heating Loop Strategic Development Loan

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## Overview

The purpose of this memo is to propose a \$[REDACTED] strategic development loan to NuPower Thermal, LLC to support a critical stage of development of the Downtown Bridgeport District Heating Loop. Staff is proposing this loan as an incremental investment following positive results from the initial feasibility study loan and to promote efforts suggested by the Comprehensive Energy Strategy to promote more effective utilization of waste-to-energy facilities (both explained below). Each \$1.00 advance of the strategic loan would fund approved third party expenses and would be matched by a \$2.00 investment by NuPower LLC, the owners of NuPower Thermal.

### *About District Energy*

A District Energy system is a centralized service providing heating and potentially cooling to a large number of buildings through a network of pipes. Originally confined to steam networks, the technology has evolved to systems based on hot (or chilled) water – as is the technology proposed for the Bridgeport system. The technology transfers waste heat from power production and other industrial processes to nearby buildings, reducing the need for those buildings to produce their own heat. Many countries in Europe have widely adopted district energy: in Germany, 89.5% of heating needs are met with recycled heat, and the industry association for district heating in Europe estimates that 50% of citizens in Poland, 60% of Lithuanians, 64% of Latvians, and 53% of Estonians were served by district heating in 2009.<sup>1</sup>

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<sup>1</sup> <http://www.renewableenergyworld.com/rea/news/article/2012/09/renewables-and-district-heating>



## Background and Transaction History

In February 2013, CEFIA staff approved a \$ [REDACTED] feasibility study loan to NuPower, LLC (“NuPower”) through the On-Site Renewable Distributed Generation Site-Specific Feasibility Study Program<sup>2,3</sup>. The loan, amended in October 2013 to \$ [REDACTED] total, financed an in-depth feasibility study into the sizing, needs, sources, and basic design of heat recovery in a proposed hot water loop in downtown Bridgeport utilizing waste heat from the Bridgeport Wheelabrator waste-to-energy plant. Wheelabrator, FuelCell Energy, COWI and NuPower contributed to the financing for the study with \$ [REDACTED] in total additional capital.

The study showed that the project concept to capture low-grade waste heat through a heat exchanger located at Wheelabrator and distribute the heat via hot water circulated through insulated underground pipes to multiple commercial, municipal and residential customers in Bridgeport was both economic and environmentally feasible, and would save end users roughly 10% in thermal costs, locked in with a long-term contract.

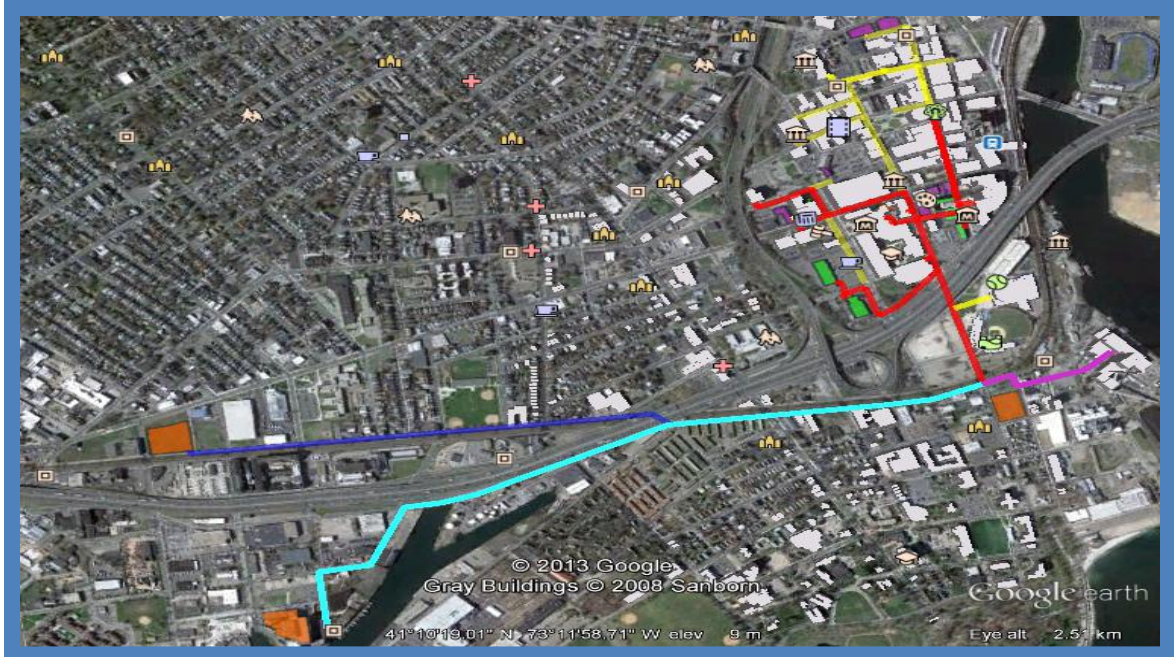
The development of the heating loop will take place in two phases. The first phase will serve three million square feet of thermal heating demand at a capital cost of approximately \$ [REDACTED]. The University of Bridgeport, added to Phase I as a result of feasibility study activities, represents 1/3 of heating demand and 25% of Phase I capital cost. Phase II will be over two million of additional square feet and 1.5 miles of piping requiring an added capital cost of approximately \$ [REDACTED].

A site plan is shown below with thermal sources in orange. Phase I piping is depicted in red, Phase II in yellow.

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<sup>2</sup> As part of CCEF, this program has been phased out. Originally structured as a grant program, CEFIA staff altered the agreements so that the Feasibility Loan will be repaid upon the successful term financing of the project

<sup>3</sup> NuPower submitted an application for a feasibility loan on October 22, 2012. CEFIA staff (Brian Farnen, Bert Hunter, and Alexandra Lieberman) completed an initial review of the application. Alexandra and Bert met with representatives of NuPower and COWI to go over major questions on pricing and cost structure on November 1, 2012. CEFIA then conducted due diligence interviews with the City of Bridgeport and Fuel Cell Energy, developers of the new Bridgeport Fuel Cell Park. David Ljungquist, CEFIA’s Energy Efficiency Deployment Director and Genevieve Sherman, CEFIA’s C-PACE Manager, then provided technical feedback on the application. Alexandra, Bert, David, and Genevieve met with COWI and NuPower a second time on January 9, 2012 to discuss milestones and technical deliverables. CEFIA staff concluded that the developer had sufficient capability to organize the requisite stakeholders, support and financing should the project be determined to have sufficient economic potential.



Such a system will have many benefits. It will significantly reduce heating costs for Bridgeport tenants connected to the loop, assist with the development of the Bridgeport Energy Improvement District, and improve the economics and efficiencies of the Wheelabrator waste-to-energy plant and, potentially, the Fuel Cell Park. The project is an effective way for the Wheelabrator facility to source new revenues to offset reduced revenues from electricity sales, an issue of concern raised by the 2013 Comprehensive Energy Strategy (“CES”). It also would enable users along the hot water loop to take advantage of the opportunity to heat with lower cost and without burning any fuel on their premises whatsoever – another goal of the CES. The system will also prove the applicability of the infrastructure and its broad potential in other cities in Connecticut, notably Hartford, as well as throughout the Northeast. There is great potential for district heating and cooling systems to be candidates for Commercial and Industrial Property-Assessed Clean Energy projects, especially given the legislative “fix” passed in 2013 to enable Commercial and Non-Profit entities to repay their pro-rata share of District Energy charges via the property tax bill.

Since completing the study in December, NuPower and the Green Bank have continued to make significant progress on the District Energy project. Key milestones include:

- Legislative “fix” to allow District Heating and Cooling charges to be assessed via C-PACE
- NuPower LLC’s statutory recognition as a regulated Thermal Utility, the “Bridgeport Thermal Limited Liability Company” in 2014 (SB 357)



- MOUs executed with Wheelabrator for sourcing waste heat; Veolia for engineering and design consulting of the heat exchanger during the feasibility study; and University of Bridgeport, which represents 1/3 of the potential customer load for Phase I of development
- Stakeholder discussions with potential customers, including: Peoples United Bank, City of Bridgeport, University of Bridgeport, Housatonic Community College and Webster Bank

## Proposed Strategic Loan

The proposed \$ [REDACTED] strategic loan will represent no more than 1/3 of the capital required to complete the initial development of the project. The Green Bank's support will co-fund critical activities needed to reach project milestones required to attract private capital, including:

- Customer acquisition
- Engineering and final system design
- Permitting
- Legal costs

[REDACTED]

Once all offtake and sourcing agreements are in place, NuPower will be able to source a vast majority, if not all, of the term and construction financing from the private market.

[TABLE REDACTED]

## Strategic Plan

*Is the program or project proposed, consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?*

While this memo proposes using funds from the Strategic Opportunities account, the project fits within both the Institutional and Commercial & Industrial strategies. On the institutional side, the project will reduce heating and cooling costs to over three million square feet of MUSH market space – including the City of Bridgeport's downtown buildings and the University of Bridgeport. Non-profits, such as University of Bridgeport, and commercial buildings that engage with NuPower on the District system will be able to secure their obligation through C-PACE.

Staff believes that the District Heating Project fits well within the requirements for a Strategic Selection from the Connecticut Green Bank Operating Procedures Section XII:

- **Special Capabilities:** NuPower LLC is uniquely positioned to develop the District Energy system, as they have proven their ability to develop large-scale infrastructure projects with the 37.5 MW Plainfield biomass facility, which was a six-year, 12-agency process. NuPower received a total of \$ [REDACTED] in loans from the Clean Energy Fund (split between a \$ [REDACTED] predevelopment loan and a \$ [REDACTED] strategic investment loan) for the Plainfield project, completely repaid with interest. Since approving the feasibility loan in January, NuPower has achieved significant development milestones, detailed above.
- **Uniqueness:** the proposed District Energy will result in 10% immediate operational savings for businesses and municipal facilities in a distressed community, and serve as an attractive option for new and current businesses.
- **Strategic Importance:** The Bridgeport project is of great importance to the Green Bank because it has strategic tie-ins to the CES and to two of the Green Bank's largest programs: C-PACE and Lead by Example.

- **Urgency and Timelines:** District Energy systems are large-scale infrastructure projects that have long development cycles.
- **Multiphase Project:** Customer acquisition is the critical juncture of the District Energy project. Once a critical mass of customers has signed agreements, the project will be able to secure equity, construction and term financing. Additionally, Phase I of the project creates optionality for other properties close to the heating loop to benefit from the operational savings.

## 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 will save roughly 7.78 MMBtu per ratepayer dollar at risk for Phase I and 11.7 additional MMBtu per ratepayer dollar at risk for Phase II.

## Terms and Conditions

The \$ [REDACTED] loan plus the previously approved and funded \$ [REDACTED] feasibility loan (\$ [REDACTED] total) will be repaid not later than the conversion of the project financing to term financing. The feasibility loan has an interest rate of 0%, while the development loan carries an interest of 5%.

## Capital Expended

*How much of the ratepayer and other capital that CEFIA manages is being expended on the project?*

Total capital expended would be \$ [REDACTED], inclusive of the amount previously approved and funded. Total new capital expended would be \$ [REDACTED], or roughly [REDACTED]% of the Green Bank's unrestricted cash balance of approximately \$72M.

## Risk

*What is the maximum risk exposure of ratepayer funds for the project?*

The maximum exposure is \$ [REDACTED], the sum of the \$ [REDACTED] feasibility loan made in 2013, and the proposed strategic development loan of \$ [REDACTED].

There are two major risks associated with the project coming to fruition and therefore, ratepayer repayment:

- **Customer acquisition:** the first major risk is the ability for NuPower to aggregate customer demand to create the contracts necessary for the economics of the District Heating loop. This has been mitigated through (a) extensive design and modeling conducted by both NuPower and COWI<sup>4</sup>, which ensures the value proposition to end users

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<sup>4</sup> COWI is one of the leading experts regarding central district heating and cooling and cogeneration systems. COWI has been working within the district heating and cooling industry for more than 40 years and has completed more than 2,000 district energy



(  
); (b) , and  
(c) the potential use of creative financing tools, such as C-PACE, which enables the thermal obligation to stay with the property in the event of a transfer of ownership.

- **Construction risk:** the second major risk is the ability of the project developers to ensure that the system construction occurs on time and on budget. This risk is being / will be mitigated through (a) ; (b) through the structuring of the construction contract; and (c) through the technology and design itself, which calls for far less trenching and far smaller piping than steam district heating systems and which has been well-established in other district heating systems, notably in Denmark and other European countries, as well as St. Paul, MN.

## Key Project Partners

The key project partner will be NuPower, LLC, an active and proven developer of renewable power projects in Connecticut whose principals bring their considerable experience and knowledge of the Connecticut market to all phases of project development, construction and commercial operation. The Company successfully developed the 37.5MW brownfield biomass plant in Plainfield, CT under the Project 150 program, which is the largest Class I facility in Connecticut and was a recipient of a total of \$ in loans from the Connecticut Clean Energy Fund which was fully repaid with interest.

## Financial Statements

*How is the project investment accounted for on the balance sheet and profit and loss statements?*

The loan would result in a \$ reduction of Unrestricted Cash on the Green Bank's balance sheet and an equivalent increase in promissory notes receivable.

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projects. COWI is a world leader in the development of hot water district energy systems and in hydraulic energy optimization of any district energy system (steam, hot water and cooling).

## Capital Flow Diagram

[REDACTED DIAGRAM]

## Target Market

The fully built project has the potential to reduce operating costs for over five million square feet of commercial and residential space in downtown Bridgeport.

	Projected Building Square Footage by Phase (Million Square Feet, MSF)	
	Phase I: Initial	Phase 2: Final
	Building Space Type/Usage (MSF)	Cumulative (MSF)
<i>Office/Commercial</i>	1.7	2.8
<i>Academic</i>	1.3	0.3
<i>Retail</i>	0.05	0.4
<i>Hotel</i>	0	0.04
<i>Convention/Arenal</i>	0	0.9
Subtotal Commercial	3.05	4.44
<i>Condominiums/Conversion</i>	0	0.7
<i>Rentals</i>	0	0.3
Subtotal Residential	0	1
<b>Total MSF</b>	<b>3.05</b>	<b>5.44</b>

## Resolutions

**WHEREAS**, in accordance with Connecticut Green Bank's mandate to foster the growth, development and commercialization of clean energy sources and related enterprises, and to stimulate demand for clean energy and deployment of clean energy sources that serve end use customers in the State of Connecticut, Connecticut Green Bank has determined that it is in keeping with Conn. Gen. Stat. Section 16-245n for Connecticut Green Bank to fund certain commercial activities that support projects involving the use of distributed generation power production;

**WHEREAS**, NuPower Thermal, LLC, a limited liability company wholly-owned by NuPower, LLC, submitted an application for financial assistance under Connecticut Green Bank's Site-Specific Feasibility Study program for the purpose of verifying the technical and economic feasibility of installing certain clean energy generating equipment;

**WHEREAS**, the Connecticut Green Bank, by staff approval, approved a feasibility loan for the District Energy project in the amount of \$ [REDACTED] on February 13, 2013, which was expanded to \$ [REDACTED] on October 9, 2013;

**WHEREAS**, NuPower Thermal, LLC has successfully completed a feasibility study into the sizing, needs, sources, and basic design of an energy system to produce hot water and chilled water at a central plant utilizing waste heat for delivery through pipes to individual buildings for space heating, domestic hot water heating and air conditioning (a "District Energy" system);

**WHEREAS**, the Connecticut Green Bank wishes to maintain its support and commitment to the success of the District Energy project and has budgeted in Fiscal Year 2014 for strategic opportunities for purposes such as these that support the Comprehensive Energy Strategy; and

**WHEREAS**, the Connecticut Green Bank staff recommends that the Board approve a strategic development loan in addition to the previously approved feasibility loans in an amount not to exceed \$ [REDACTED] to NuPower Thermal, LLC for the development of the downtown Bridgeport District Energy project, given the special capabilities of NuPower, LLC in developing large scale infrastructure projects in the State of Connecticut, the uniqueness of the project itself and its potential to achieve significant private and public leverage, the strategic importance of reducing heating costs and enhancing the operational costs at a large scale in a distressed municipality, and the multi-phase characteristics of the District Energy project.

**NOW**, therefore be it:

**RESOLVED**, that the Connecticut Green Bank Board of Directors approves of the NuPower Thermal, LLC loan for development of the downtown Bridgeport District Heating Loop as a Strategic Selection and Award pursuant to the Connecticut Green Bank Operating Procedures Section XII given the special capabilities of NuPower, LLC in developing large scale infrastructure projects in the State of Connecticut, the uniqueness of the project itself and its potential to achieve significant private and public leverage, the strategic importance of reducing

heating costs and enhancing the operational costs at a large scale in a distressed municipality, and the multi-phase characteristics of the District Energy project.

**RESOLVED**, that the President of Connecticut Green Bank and any other duly authorized officer of Connecticut Green Bank is authorized to execute definitive loan documentation based on the terms in this due diligence package for financial support in the form of strategic development loan financing in an amount not to exceed \$ [REDACTED].

**RESOLVED**, that the Connecticut Green Bank Board of Directors' approval is conditioned upon the completion of the Green Bank staff's due diligence review, including review and reasonable satisfaction with all project documentation.



**CLEAN ENERGY**  
**FINANCE AND INVESTMENT AUTHORITY**

# Memo

**To:** Board of Directors of the Clean Energy Finance and Investment Authority

**From:** Lucy Charpentier (Manager of Evaluation, Measurement and Verification), Dale Hedman (Director of Statutory and Infrastructure Programs), Mackey Dykes (Chief of Staff), Bryan Garcia (President and CEO),

**Cc:** Jessica Bailey (Director of C-PACE), Andy Brydges (Director of Institutional Sector Programs), Bert Hunter (EVP and CIO), and Kerry O'Neill (Director of Residential Programs)

**Date:** July 11, 2014

**Re:** Statutory and Infrastructure Sector Programs – Program Performance towards Targets (FY 2013 and FY 2014 Program Performance towards End of 2014 Targets)

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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 Clean Energy Finance and Investment Authority (CEFIA) develop and implement several programs to support the deployment of solar photovoltaic (PV), combined heat and power (CHP), and anaerobic digester (AD) technologies. Other statutory policies require CEFIA's support for grid-tied projects in Connecticut, including, but not limited to Public Act 05-01, *An Act Concerning Energy Independence*, which resulted in Project 100 and eventually Project 150.

Alongside these acts, 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.

For a description of the programs and the TAM and SAM, please see the Comprehensive Plan.

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## Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of CEFIA on September 28, 2012, the following are the performance targets through 2014 and the progress made thus far in FY 2013 and FY 2014 for the Statutory and Infrastructure Sector Programs (see Table 1). Also, for comparative purposes, included are the total overall targets for all programs through 2014.

**Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan for FY 2013 and FY 2014 (as of June 30, 2014)**

Key Metrics	Program Performance Targets	Program Progress	Overall Targets
CEFIA Investment at Risk <sup>1</sup>	\$37,550,000	\$44,109,831	\$45,300,000
Private Capital	\$140,350,000	\$168,984,447	\$186,600,000
Deployed (MW)	55.1	46.5	51.1
# of Loans/Projects	2,575	3,694	5,283
Annual Saved (MMBtu)	-	14,101	180,000

### Statutory and Infrastructure Sector Programs

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

- Residential Solar Investment Program** – \$33,655,331 in subsidies<sup>2</sup> from CEFIA has attracted \$81,399,947 of funds from other sources. Of the 3,690 residential solar PV projects supported through the program two-thirds of the projects are either completed or under construction and one-third of the projects are approved.<sup>3</sup> This is resulting in the deployment of 26.0 MW of installed capacity – 16.9 MW from completed or under construction projects, and 9.5 MW of approved projects. This results in the creation of 679 direct job years (and 1,966 indirect and induced job years) and the reduction of 325,014 tons of CO<sub>2</sub> emissions over the life of the projects.

As of July 7, there are 258 applications pending approval for a total of 1.9 MW (EPBB – 152, 1.2 MW and PBI – 106, 0.7 MW) which is not reported above.

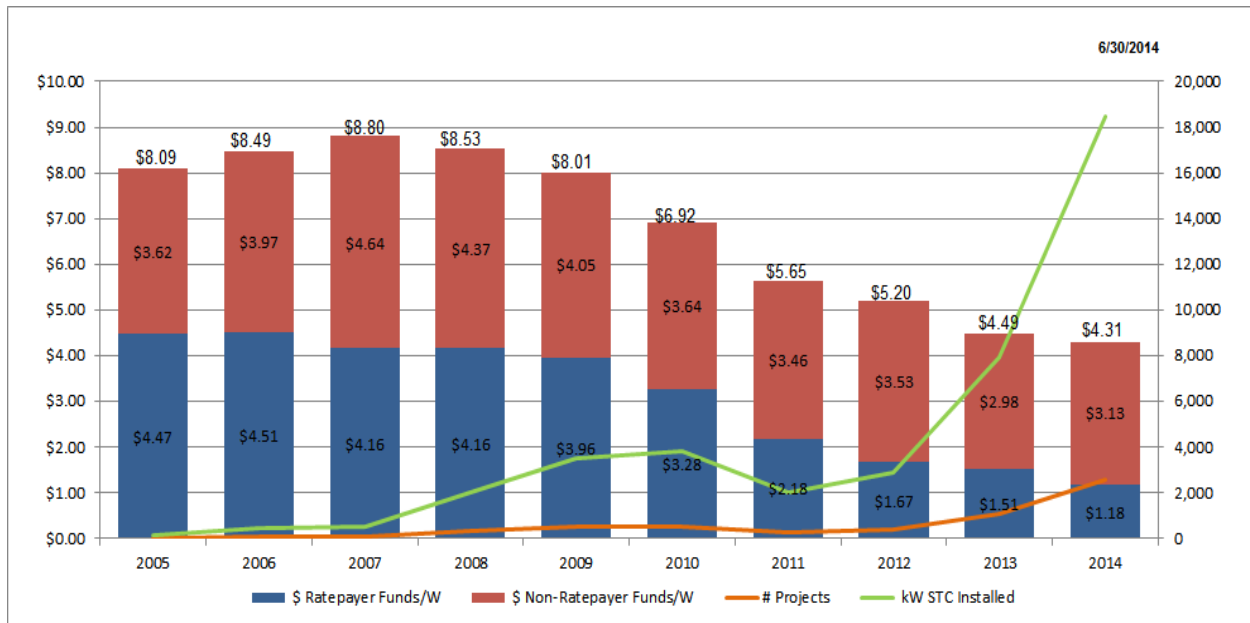
The residential solar PV market in Connecticut has seen a dramatic improvement over the past several years (see Figure 1). Installed costs have decreased by over 50% from a high of \$8.80/W in 2007 to \$4.31/W today. Incentives have decreased by over 70% from a high of \$4.51/W in 2006 to \$1.18/W today. And demand has doubled the past two years resulting in CEFIA nearly achieving the legislative target of 30 MW, over 7 years ahead of schedule and well under budget.

<sup>1</sup> Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by CEFIA that are committed and invested in subsidies, credit enhancements, and loans and leases.

<sup>2</sup> Note the distribution of EPBB and PBI and the 6-year payout of the PBI.

<sup>3</sup> Based on nearly 10-years of historical experience, [89%] of projects approved result in project completions. (512 cancellations / 4599 applications that are currently In Progress or Completed)

**Figure 1. Installed Cost (\$/W – Y1 Axis) and Installed Capacity (kW – Y2 Axis) by Fiscal Year (as of June 30, 2014)**



- CHP and AD Pilot Programs** – \$934,500 in subsidies, \$33,750 in credit enhancements, and \$13,792,512 in loans for a total CEFIA investment of \$14,760,762. Of the \$14,760,762 of CEFIA investment in these projects (see Tables 2 and 3), \$70,261,988 of private capital has been attracted to support them. This has resulted in 4 CHP projects totaling 3.8 MW of installed capacity – 3.1 MW approved and 0.7 MW closed and completed – and 4 AD projects totaling 5.8 MW of installed capacity – 5.8 MW approved only.

**Table 2. CHP Pilot Program Overview for FY 2013 and FY 2014 (as of June 30, 2014)**

Program Data	Approved	Closed not yet Complete	Closed and Completed	Total
Projects	2	-	2	4
Installed Capacity (MW)	3.1	-	0.7	3.8
Clean Energy Produced (MWh) <sup>4</sup>	363,650	-	81,008	444,658
Energy Saved (MMBtu) <sup>5</sup>	61,758	-	14,101	75,859
Subsidies (\$'s)	\$630,000	-	\$304,500	\$934,500
Credit Enhancement (\$'s)	\$33,750	-	-	\$33,750
Loans or Leases (\$'s)	-	-	-	-
Total CEFIA Investment (\$'s)	\$663,750	-	\$304,500	\$968,250
Private Capital (\$'s)	\$5,670,000	-	\$2,884,500	\$8,554,500

<sup>4</sup> Over the life of the measure(s)

<sup>5</sup> First year of the measure(s)

**Table 3. AD Pilot Program Overview for FY 2013 and FY 2014 (as of June 30, 2014)**

<b>Program Data</b>	<b>Approved</b>	<b>Closed not yet Complete</b>	<b>Closed and Completed</b>	<b>Total</b>
Projects	4	-	-	4
Installed Capacity (MW)	5.8	-	-	5.8
Clean Energy Produced (MWh) <sup>6</sup>	605,491	-	-	605,491
Energy Saved (MMBtu) <sup>7</sup>	118,575	-	-	118,575
Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s)	-	-	-	-
Loans or Leases (\$'s)	<u>\$13,792,512</u>	-	-	<u>\$13,792,512</u>
Total CEFIA Investment (\$'s)	\$13,792,512	-	-	\$13,792,512
Private Capital (\$'s)	\$61,707,488	-	-	\$61,707,488

The CHP pilot program is estimated to have created 59 direct and 94 indirect and induced jobs years

- Grid and Infrastructure Program** – \$8.6 million in loans and \$1.55 million in grants from CEFIA to support two (2) grid-tied projects – a 14.8 MW fuel cell park in Bridgeport (closed and completed) and a 5.0 MW two-turbine wind project in Colebrook (approved and not yet closed). When complete, these projects will have attracted \$84,700,000 of funds from other sources – \$65,000,000 for the fuel cell project and \$19,700,000 for the wind project – to support 19.8 MW of projects as a result of PA 05-01 (i.e., Project 150) and PA 11-90 (i.e., Section 127). The fuel cell project created 135 direct and 311 indirect and induced jobs years while reducing 85,739 tons of CO2 emissions over the life of the project. The wind project is expected to reduce 61,436 tons of CO2 emissions over the life of the project.

For a breakdown of the use of CEFIA resources for Statutory and Infrastructure Sector Programs (see Table 4).

**Table 4. Distribution of CEFIA Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases from FY 2013 and FY 2014 (as of June 30, 2014)**

<b>Program</b>	<b>Subsidies</b>	<b>Credit Enhancements</b>	<b>Loans and Leases</b>	<b>Total</b>
RSIP	\$33,655,331 <sup>8</sup>	-	-	\$33,655,331
CHP	\$304,500	-	-	\$304,500
AD	-	-	-	-
Grid-Tied	\$1,550,000	-	\$8,600,000	\$10,150,000
<b>Total</b>	<b>\$35,509,831</b>	<b>-</b>	<b>\$8,600,000</b>	<b>\$44,109,831</b>

Of the \$44 million of CEFIA resources invested, 80% was in subsidies, 0% was in Credit Enhancements, and 20% was in Loans and Leases.

<sup>6</sup> Over the life of the measure(s)

<sup>7</sup> First year of the measure(s)

<sup>8</sup> It should be noted that \$16,160,894 is in PBI, therefore it is paid out over a six year period based on the performance of the system.



Overall, the implementation of these three programs has been steady and progress has been substantial given the Comprehensive Plan targets through 2014. We expect to continue to deliver results beyond the Comprehensive Plan targets – with residential solar PV being a major focus of local renewable energy deployment and job creation.

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 5):

**Table 5. Program Progress Made from FY 2013 and FY 2014**

<b>Key Metrics</b>	<b>RSIP</b>	<b>CHP and AD Program</b>	<b>Grid and Infrastructure Program</b>	<b>Total Program Progress</b>
Date of Program Approval	Feb 2012	Feb 2012	Nov 2012	-
Date of Program Launch	Mar 2012	Jun/Dec 2012	Dec 2013	-
Ratepayer Capital at Risk	\$33,655,331	\$304,500	\$10,150,000	\$44,109,831
Private Capital	\$81,399,947	\$2,884,500	\$84,700,000	\$168,984,447
Deployed (MW)	26.0	0.7	19.8	46.5
# of Loans/Installations	3,690	2	2	3,694
Lifetime Production (MWh)	626,836	81,008	1,923,465	2,631,309
Annual Saved (kMMBtu)	-	14,101	-	14,101
Full Time Equivalent Staff	4.45	1.00	0.30	5.75

## **Lessons Learned**

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

1. **Residential Solar PV Financing Options and Community- Based Marketing Drive Deployment** – The 30 Megawatt capacity target for the RSIP will be achieved early in FY2015 (if not sooner), more than seven (7) ahead of schedule. With the RSIP’s offering incentives, homeowners are finding the economics of deploying a solar PV system more attractive than ever before. From projects approved in FY2014, 15.1 Megawatts of capacity will be installed. FY2015 approved projects are expected to generate 23 Megawatts of capacity, nearly a 66% increase. Access to financing is driving demand – over 20% of projects approved last quarter, were with CEFIA’s financing products (i.e., CT Solar Lease, CT Solar Loan, and the Smart-E Loan). Solarize is also driving demand – over 30% of projects approved since the start of the RSIP are as a result of the Solarize Connecticut program.
2. **Loans in Lieu of Grants** – Anaerobic Digestion (AD), Combined Heat and Power (CHP) and Micro-grid (MG) Projects Can Be Constructed Using Loans and Credit Enhancements in Place of Grants. Long-term low-interest subordinated loans and credit

enhancements for AD, CHP and MG projects are making projects more attractive to third-party debt and equity investors. The experience of the AD and CHP Pilots is proving that long-term subordinated debt and credit enhancement can be more economical to a project than a grant because they lower the risk of financing the project's capital cost to investors. However, it does require more public capital into projects to support debt transactions instead of grants.

### Statutory and Infrastructure Sector Programs FY 2015 Quarterly Targets

Of the three programs being implemented in the Statutory and Infrastructure Sector Programs, the following is a breakdown of the key quarterly targets for each program (see Tables 6-9):

**Table 6. Number of Projects**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
RSIP	640	800	800	960
CHP and AD	-	5	6	6
Grid and Infrastructure	-	-	-	-
<b>Total</b>	<b>640</b>	<b>805</b>	<b>806</b>	<b>966</b>

**Table 7. Capital Deployed**

<b>Program (\$ in Millions)</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
RSIP	\$18,100,000	\$23,000,000	\$23,000,000	\$28,000,000
CHP and AD	-	\$50,700,000	\$27,100,000	\$37,200,000
Grid and Infrastructure	-	-	-	-
<b>Total</b>	<b>\$18,100,000</b>	<b>\$73,700,000</b>	<b>\$50,100,000</b>	<b>\$65,200,000</b>

**Table 8. Clean Energy Deployed (MW)**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
RSIP	4.6	5.8	5.8	6.9
CHP and AD	-	7.7	2.5	4.6
Grid and Infrastructure	-	-	-	-
<b>Total</b>	<b>4.6</b>	<b>13.5</b>	<b>8.3</b>	<b>11.5</b>

**Table 9. Annual Clean Energy Generated and Saved (MMBtu)**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
RSIP	18,311	22,889	22,889	27,467
CHP and AD	-	356,054	115,602	212,708
Grid and Infrastructure	-	-	-	-
<b>Total</b>	<b>18,311</b>	<b>378,943</b>	<b>138,491</b>	<b>240,175</b>

To achieve these quarterly targets, the Statutory and Infrastructure Sector Programs will focus its programmatic expenses in the following areas:

- **Continue Successful Transition to Financing** – support the Residential Sector in driving demand with all financing options and products available to homeowners by maintaining efficiency in processing RSIP applications and transitioning to a new model that allows for scalability
- **Focus on Closing Transactions** – increase our activities to bring projects in our AD and CHP pipeline to financial close and commissioning
- **Assist in the Development of Program** – help support efforts to finance the generation portion of micro-grid projects

The Statutory and Infrastructure Sector Programs are making good progress towards meeting the end of 2014 targets underneath the Comprehensive Plan.



**CLEAN ENERGY**  
**FINANCE AND INVESTMENT AUTHORITY**

# Memo

**To:** Board of Directors of the Clean Energy Finance and Investment Authority

**From:** Lucy Charpentier (Manager of Evaluation, Measurement and Verification), Mackey Dykes (Chief of Staff), Bryan Garcia (President and CEO), and Kerry O'Neill (Director of Residential Programs)

**Cc:** Jessica Bailey (Director of Commercial and Industrial Programs), Andy Brydges (Director of Institutional Programs), Dale Hedman (Director of Statutory and Infrastructure Programs), Bert Hunter (EVP and CIO)

**Date:** July 11, 2014

**Re:** Residential Sector Programs – Program Performance towards Targets (FY 2013 and FY 2014 Program Performance towards End of 2014 Targets)

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## 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 Clean Energy Finance and Investment Authority (CEFIA) 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 homes across the state. It should be noted that these programs, and it's staffing, are still in start-up having had only a year's worth of implementation.

For a program description and information on the Total Addressable Market and Serviceable Addressable Market (SAM), please see the FY 2015 and FY 2016 Comprehensive Plan.

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## Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of CEFIA on September 28, 2012, the following are the performance targets through 2014 and the progress made thus far for in FY 2013 and FY 2014 for the Residential Sector Programs (see Table 1). Also, for comparative purposes, included are the total performance targets for all programs through 2014.

It should be noted that the performance targets established were based on the amount of private capital investment attracted into clean energy financing in Connecticut – not the actual deployment of those funds by driving demand. Since these performance targets we approved in the fall of 2012, CEFIA staff has reoriented expectations and focused on more modest targets based on capital deployed versus capital attracted. This has resulted in a renewed emphasis to improve CEFIA's marketing expertise and the hiring of a Director of Marketing in FY 2015.

**Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan as of June 30, 2014**

Key Metrics	Program Performance Targets	Program Progress	Overall Targets
CEFIA Investment at Risk <sup>1</sup>	\$12,000,000	\$3,861,430	\$45,300,000
Private Capital	\$60,000,000	\$4,887,923	\$186,600,000
Deployed (MW)	15.0	2.3	51.1
# of Loans/Projects	4,250	393	5,283
Annual Saved (MMBtu)	75,000	1,255	180,000

### Residential Sector Programs

The following are brief descriptions of the progress made under the last comprehensive plan in the Residential Sector Programs

- **Energize CT Smart-E Loan** – a credit enhancement program that uses \$2.8 million of repurposed ARRA-SEP funds as a loan loss reserve and interest rate buy down to attract nearly \$31 million of 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 12 years) for technologies that are consistent with the goals of the Comprehensive Energy Strategy.

**Table 21. Energize CT Smart-E Loan Overview for FY 2013 and FY2014 (lender data as of May 31, 2014 and project data as of June 30, 2014)<sup>2</sup>**

Program Data	Approved	Closed not yet Complete	Closed and Completed	Total
Projects	57	52	91	200
Installed Capacity (MW)	0.0	0.2	0.2	0.4
Clean Energy Produced (MWh) <sup>3</sup>	173	4,616	3,874	8,664
Energy Saved (MMBtu) <sup>4</sup>	330	271	984	1,585
Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s)	\$65,400	\$57,280	\$81,824	\$204,504
Loans or Leases (\$'s)	-	-	-	-
Total CEFIA Investment (\$'s) <sup>5</sup>	\$65,400	\$57,280	\$81,824	\$204,504
Private Capital (\$'s)	\$872,002	\$763,729	\$1,090,983	\$2,726,715

As the Smart-E Loan has not even been in implementation statewide for more than a year, its implementation is in start-up and we are now beginning to see steady progress and growth speed up. 170 contractors have been trained to use the product and 56 of

<sup>1</sup> Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by CEFIA that are committed and invested in subsidies, credit enhancements, and loans and leases.

<sup>2</sup> The lender data is not yet complete for June. We will restate this number on a revised memo once data is received by all lenders this summer.

<sup>3</sup> Over the life of the measure(s)

<sup>4</sup> First year of the measure(s)

<sup>5</sup> 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 loan from the local lenders.

them have completed a financing application with the Smart-E Loan. The Smart-E Loan program is estimated to have created 25 direct and 40 indirect and induced jobs years and 4,492 tons of CO2 emissions reduced over the life of the projects.

It should be noted that Smart-E On Bill Repayment (OBR) will be designed and begin implementation in late FY 2015. This will allow for the repayment of a loan with a qualifying upgrade on a utility bill.

Also, CEFIA's Energize CT Smart-E Loan currently competes against the Connecticut Housing Investment Fund's Residential Energy Efficiency Loan and the gas companies' Energize CT Heating Loan financing programs, both ratepayer-subsidized financing products. DEEP's stated policy is that ratepayer-subsidized products should be positioned such that they do not undermine products backed by private capital. This is resulting in lower uptake in privately financed energy efficiency projects – versus solar PV and HVAC upgrades. This is an ongoing area of focus for DEEP, CEFIA, the utilities and EEB.

- **CT Solar Loan** – in partnership with a crowd-sourced fund (i.e. Mosaic) and a servicer (i.e. Sungage Financial), a 15-year solar loan product is offered to a range of credit quality consumers (no less than 680 FICO) interested in solar PV. A specialty product designed for solar PV, interest rates are affordable at 6.49% and the CT Solar Loan may re-amortize after the ITC is received by the borrower to ensure the positive cash flow of energy savings from solar PV exceeding the debt service of the loan.

**Table 3. CT Solar Loan Overview for FY 2013 and FY2014 (as of June 30, 2014)**

<b>Program Data</b>	<b>Approved</b>	<b>Closed not yet Complete</b>	<b>Closed and Completed</b>	<b>Total</b>
Projects	62	120	23	205
Installed Capacity (MW)	0.5	0.9	0.1	1.5
Clean Energy Produced (MWh) <sup>6</sup>	10,476	22,095	4,316	36,887
Energy Saved (MMBtu) <sup>7</sup>	-	-	-	-
Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s) <sup>8</sup>	\$96,284	\$183,551	\$37,640	\$317,475
Loans or Leases (\$'s)	<u>\$1,234,408</u>	<u>\$2,353,217</u>	<u>\$482,568</u>	<u>\$4,070,193</u>
Total CEFIA Investment (\$'s)	\$1,330,692	\$2,536,767	\$520,208	\$4,387,669
Private Capital (\$'s)	-	-	-	-

CEFIA provides the upfront capital for the CT Solar Loan through a warehouse that will replenished through sell-offs to Mosaic. 26 contractors have been trained to use the product and 20 of them have completed a financing application with the CT Solar Loan. The CT Solar Loan program is estimated to have created 34 direct and 54 indirect and induced jobs years and 19,125 tons of CO2 emissions reduced over the life of the projects.

<sup>6</sup> Over the life of the measure(s)

<sup>7</sup> First year of the measure(s)

<sup>8</sup> Based on the Objective Functions for the CT Solar Loan, the loan loss reserve credit enhancement represents about 7.8% of the value of the loan.

- **CT Solar Lease** – a lease program that uses \$3.5 million in repurposed ARRA-SEP funds as a loan loss reserve and \$7.6 million in debt and equity from CEFIA approved by the Board of Directors to attract \$40 million of private capital from a syndicate of local lenders to provide homeowners with FICO scores of 640 and above with a no upfront financing option for residential solar PV and solar hot water system deployment.

**Table 4. CT Solar Lease Overview for FY 2013 and FY2014 (as of June 30, 2014)**

Program Data	Approved	Closed not yet Complete	Closed and Completed	Total
Projects	250	88	18	356
Installed Capacity (MW)	1.8	0.7	0.1	2.6
Clean Energy Produced (MWh) <sup>9</sup>	44,190	15,618	3,218	63,026
Energy Saved (MMBtu) <sup>10</sup>	-	-	-	-
Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s) <sup>11</sup>	\$401,843	\$157,099	\$27,330	\$586,272
Loans or Leases (\$'s) <sup>12</sup>	<u>\$1,044,792</u>	<u>\$408,457</u>	<u>\$71,058</u>	<u>\$1,524,307</u>
Total CEFIA Investment (\$'s)	\$1,446,634	\$565,556	\$98,389	\$2,110,579
Private Capital (\$'s)	\$6,590,224	\$2,576,421	\$448,214	\$9,614,858

As the CT Solar Lease has not even been in implementation for a year, its implementation is in start-up and we are now beginning to see steady progress and growth speed up. 21 contractors have been trained to use the product and 15 of them have completed a financing application with the CT Solar Lease. The CT Solar Lease program is estimated to have created 728 direct and 117 indirect and induced jobs years and 32,679 tons of CO2 emissions reduced over the life of the projects.

- **Cozy Home Loan** – a credit enhancement program that uses \$410,000 of repurposed ARRA-SEP funds as a loan loss reserve and interest rate buy down to attract \$2.5 million of private capital from Community Development Financial Institutions (i.e. Opportunity Finance Network). The product, administered by the Housing Development Fund, provides 10-year loans for technologies that are consistent with the goals of the Comprehensive Energy Strategy to households below 80% of area median income in the Fairfield, Litchfield, and New Haven counties.

**Table 5. Cozy Home Loan Overview for FY 2013 and FY2014 (as of June 30, 2014)**

Program Data	Approved	Closed not yet Completed	Closed and Completed	Total
Projects	4	-	1	5
Installed Capacity (MW)	-	-	-	-
Clean Energy Produced (MWh) <sup>13</sup>	-	-	-	-
Energy Saved (MMBtu) <sup>14</sup>	-	-	-	-

<sup>9</sup> Over the life of the measure(s)

<sup>10</sup> First year of the measure(s)

<sup>11</sup> Based on the Objective Functions for the CT Solar Lease, the loan loss reserve credit enhancement represents about 5% of the value of the lease.

<sup>12</sup> Based on the Objective Functions for the CT Solar Lease, the loan financing represents about 13% of the value of the lease.

<sup>13</sup> Over the life of the measure(s)

<sup>14</sup> First year of the measure(s)

Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s) <sup>15</sup>	\$5,198	-	\$1,406	\$6,605
Loans or Leases (\$'s)	=	=	=	=
Total CEFIA Investment (\$'s)	\$5,198	-	\$1,406	\$6,605
Private Capital (\$'s)	\$31,698	-	\$8,575	\$40,273

Since the Cozy Home Loan has had a very difficult time getting off the ground as the target market is limited income, the Housing Development Fund is in the process of revamping the offering to appeal to this challenging market segment.

For a breakdown of the use of CEFIA resources for Residential Programs, see table 6 below.

**Table 6. Distribution of CEFIA Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases from FY 2013 and FY 2014 (as of June 30 2014)**

Program	Subsidies	Credit Enhancements	Loans and Leases	Total
Smart-E	-	\$139,103	-	\$139,103
CT Solar Loan	-	\$221,191	\$2,835,785	\$3,056,976
CT Solar Lease	-	\$184,429	\$479,515	\$663,944
Cozy Home	-	\$1,406	-	\$1,406
<b>Total</b>	-	<b>\$546,130</b>	<b>\$3,315,300</b>	<b>\$3,861,430</b>

Of the \$3.8 million of CEFIA resources invested, 0% was in subsidies, 14% was in Credit Enhancements, and 86% was in Loans and Leases. 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 5):

**Table 72. Program Progress Made from FY 2013 and FY 2014 (as of June 30, 2014)**

Key Metrics	Smart-E	CT Solar Loan	CT Solar Lease	Cozy Home Loan	Total Program Progress
Date of Program Approval	Nov 2012	Nov 2012	June 2013		-
Date of Program Launch	Nov 2013	July 2013	Sept 2013		-
Ratepayer Capital at Risk	\$139,103	\$3,056,976	\$663,944	\$1,406	\$3,861,430
Private Capital	\$1,854,712	-	\$3,24,636	\$8,575	\$4,887,923
Deployed (MW)	.4	1.1	0.8	-	2.3
# of Loans/Installations	143	143	106	1	393
Lifetime Production (MWh)	8,490	26,411	18,836	-	53,737
Annual Saved (MMBtu)	1,255	-	-	-	1,255
Full Time Equivalent Staff	2.30	0.75	1.60	Included in Smart-E	4.65

In addition to the financing programs for single family households, CEFIA is currently developing programs for multifamily properties as well. See the Comprehensive Plan for details.

<sup>15</sup> Based on the Objective Functions for the Cozy Home Loan, the loan loss reserve and interest rate buydown for the credit enhancement represents about 16.4% of the value of the loan



## Lessons Learned

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

1. **Financing pipeline is longer than projected for solar projects and highly seasonal for Smart-E**
  - a. Solar projects have longer timeline from application to close
  - b. Smart-E lenders saw very slow Jan/Feb (consistent with other lines of lending)
2. **Operations starting to stabilize** – moving beyond “start-up” mode:
  - a. Highly manual internal processes/data tracking not sustainable for scale – starting to address
  - b. Tranching process in place for lease, intensive contractor meetings resulting in smoother process
3. **Still competing with subsidized capital** – CHIF and Gas company heating loan, which is resulting in less energy efficiency and natural gas conversion opportunities.
4. **Smart-E Lenders and contractors seeing value in program participation**
  - a. Variety of ways program is viewed by lenders: customer engagement and/or new customer acquisition resulting in increased deposits, tie into small business lending with Smart-E contractors, PR/good community partner
  - b. Contractors like the working capital solutions, which removes a traditional barrier to offering financing to customers; financing options supporting business growth
5. **Solar and HVAC are the focus** – not much traditional energy efficiency
  - a. Solarize campaigns showed strong application trends for CT Solar Lease and CT Solar Loan
  - b. Handful of contractors are driving our volume to date – potential opportunity to work with engaged contractors to sell solar +, HVAC+

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## Residential Sector Programs FY 2015 Quarterly Targets

Of the 4 programs being implemented in the Residential Sector Programs, the following is a breakdown of the key quarterly targets for each program (see Tables 8-11):

Table 83. Number of Projects

Program	FY 2015 Q1 (Jul-Sep)	FY 2015 Q2 (Oct-Dec)	FY 2015 Q3 (Jan-Mar)	FY 2015 Q4 (Apr-Jun)
Smart-E	50	80	75	95
CT Solar Loan	115	90	120	130
CT Solar Lease	70	115	85	120
Cozy Home	5	10	15	20
Total	240	295	295	365

**Table 9. Capital Deployed**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
Smart-E	\$675,000	\$1,080,000	\$1,012,500	\$1,282,500
CT Solar Loan	\$2,357,500	\$1,845,000	\$2,460,000	\$2,665,000
CT Solar Lease	\$2,625,000	\$4,312,500	\$3,187,500	\$4,500,000
Cozy Home	\$50,000	\$100,000	\$150,000	\$200,000
<b>Total</b>	<b>\$5,707,500</b>	<b>\$7,337,500</b>	<b>\$6,810,000</b>	<b>\$8,647,500</b>

**Table 10. Clean Energy Deployed (MW)**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
Smart-E	0.22	0.14	0.18	0.18
CT Solar Loan	0.83	0.65	0.86	0.94
CT Solar Lease	0.5	0.83	0.61	0.86
Cozy Home	n/a	n/a	n/a	n/a
<b>Total</b>	<b>1.55</b>	<b>1.62</b>	<b>1.66</b>	<b>1.98</b>

**Table 11. Annual Clean Energy Generated and Saved (MMBtu)**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
Smart-E	920	1,471	1,380	1,747
CT Solar Loan	3,221	2,521	3,361	3,641
CT Solar Lease	1,960	3,220	2,380	3,360
Cozy Home	68	136	204	272
<b>Total</b>	<b>6,169</b>	<b>7,348</b>	<b>7,325</b>	<b>9,020</b>

To achieve these quarterly targets, the Residential Sector Programs will focus its programmatic expenses in the following areas:

- **Driving Demand/Marketing Innovation**
  - Contractor engagement
  - Integrated marketing campaigns through a channel strategy including marketing support for:
    - ▶ contractors, lenders, online (web, email, social media, paid search), community pilots, earned media, promotions; and supporting strategies including website development, consumer tools, and market segmentation data
  - Performance-based customer acquisition strategies
  - Incentives/promotions – ongoing testing (interest rate buy-downs, xx months free, upgrade bundles, sweeps/giveaways etc.)
  - Market segmentation analysis of the CT solar customer

- **Solar financing options, then HVAC – build on success**
  - Grow market share for CEFIA’s solar finance products from about 30% to 50% of the non-national RSIP projects
  - Deepen relationship with HVAC and hot water heating contractor base
  
- **On-Bill Repayment**
  - Smart-E OBR – Phase I
  - Other loan products, transferability, etc. – Phase II
  
- **Going Deeper**
  - Strategies to support multi-measure upgrades – solar plus, HVAC/gas conversion plus (Smart-E Bundles), contractor vertical integration and partnerships, etc.
  
- **Multifamily Housing**
  - Affordable – CHIF “LIME” loan, C-PACE for Multifamily, credit enhancement RFP, Winn-HUD Open Market ESCO, CHFA pilot
  - Market rate – C-PACE for MF, credit enhancement RFP, condominium financing
  
- **Process Support** – including outsourced infrastructure for technical underwriting/approvals and quality assurance/quality control; data analytics
  
- **Staff** – to support iterative product development, refinement and implementation, with a particular focus on training and ongoing support for contractors and lenders



**CLEAN ENERGY**  
**FINANCE AND INVESTMENT AUTHORITY**

# Memo

**To:** Board of Directors of the Clean Energy Finance and Investment Authority

**From:** Jessica Bailey (Director of Commercial and Industrial Programs), Lucy Charpentier (Manager of Evaluation, Measurement and Verification), Bryan Garcia (President and CEO), Mackey Dykes (Chief of Staff)

**Cc:** Andy Brydges (Director of Institutional Programs), Dale Hedman (Director of Statutory and Infrastructure Programs), Bert Hunter (EVP and CIO), and Kerry O'Neill (Director of Residential Programs)

**Date:** July 11, 2014

**Re:** Commercial and Industrial Sector Programs – Program Performance towards Targets (FY 2013 and FY 2014 Program Performance towards End of 2014 Targets)

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## Overview

Pursuant to Public Act 12-2, the Clean Energy Finance and Investment Authority (CEFIA) 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 2013 and 2014.

For a program description and information on the Total Addressable Market and Serviceable Addressable Market (SAM), please see the FY 2015 and FY 2016 Comprehensive Plan.

The CEFIA investment in C-PACE projects comes from the use of carbon emission allowance proceeds from the Regional Greenhouse Gas Initiative (RGGI). Rather than use RGGI proceeds as rebates, Connecticut invests these funds in C-PACE projects with the expectation that they will (1) attract multiples of private investment in projects, and (2) that these funds will be returned for later reinvestment in other projects that lower energy costs for participating businesses.

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## Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of CEFIA on September 28, 2012, the following are the performance targets through 2014 and the progress made thus far in FY 2013 and FY 2014 for the Commercial and Industrial Sector Programs (see Table 1). Also, for comparative purposes, included are the total performance targets for all programs through 2014.

**Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan for FY 2014 and FY 2014 (as June 30, 2014)**

Key Metrics	Program Performance Targets	Program Progress	Overall Targets
CEFIA Investment at Risk <sup>1</sup>	\$10,000,000	\$20,179,220	\$45,300,000
Private Capital	\$30,000,000	\$6,149,708	\$186,600,000
Deployed (MW)	5.0	3.5	51.1
# of Loans/Projects	150	28	5,283
Annual Saved (MMBtu)	107,000	43,548	180,000

In January 2013, the Green Bank introduced the C-PACE program. C-PACE is one of the country’s first statewide programs to provide 100 percent upfront financing for energy upgrades to commercial, industrial and nonprofit buildings. Under this program, property owners obtain financing needed to make key energy improvements, and then repay it as a benefit assessment charge on their property tax bill. Because the payments can be spread over a period of up to 20 years, owners save on energy costs immediately and for years to come. The financed improvements increase the building’s value, while preserving the building owner’s capital and credit lines for core investments.

C-PACE financing is available for a wide range of clean energy and energy efficiency improvements, including new boilers and chillers, upgraded insulation, new windows or solar installations. Energy audits and construction costs can also be financed through C-PACE. C-PACE has been a notable success in deploying clean energy throughout the state. Eighty Connecticut municipalities, together accounting for 83 percent of the state’s commercial and industrial building stock, have signed onto the program. Since launching C-PACE, the Green Bank has established a \$40 million warehouse facility using the Green Bank’s balance sheet. Working with its group of qualified capital providers, the Green Bank auctioned its first group of transactions and secured private capital to purchase the initial \$30 million portfolio of transactions that the Green Bank has and will originate.

### Commercial and Industrial Sector Programs

The following are brief descriptions of the progress made under the last comprehensive plan in the Commercial and Industrial 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.

**Table 2. C-PACE Overview for FY 2013 and FY2014 (as of June 30, 2014)**

Program Data	Approved	Closed Not Yet Complete	Closed and Completed	Total
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<sup>1</sup> Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by CEFIA that are committed and invested in subsidies, credit enhancements, and loans and leases.

Program Data	Approved	Closed Not Yet Complete	Closed and Completed	Total
Projects	10	14	12	36
Installed Capacity (MW)	1.62	2.51	0.88	5.01
Clean Energy Produced (MWh) <sup>2</sup>	38,660	59,641	20,981	119,282
Energy Saved (MMBtu) <sup>3</sup>	19,848	26,708	16,132	62,688
Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s)	-	-	-	-
Loans or Leases (\$'s)	<u>\$8,979,144</u>	<u>\$11,368,653</u>	<u>\$8,060,567</u>	<u>\$28,408,364</u>
Total CEFIA Investment (\$'s)	<u>\$8,979,144</u>	<u>\$11,368,653</u>	<u>\$8,060,567</u>	<u>\$28,408,364</u>
Private Capital (\$'s)	-	-	\$6,149,708	\$6,149,708

Overall, the implementation of C-PACE has been steady and progress continues to speed up. CEFIA expects to double the amount of capital deployed in fiscal year 2015 over the previous targets. The C-PACE program is estimated to have created 154 direct and 246 indirect and induced jobs years and reduced 61,848 tons of CO2 emissions over the life of the projects.-

- **Clean Energy Business Solutions** – partnership with the Department of Economic and Community Development (DECD) to provide up to \$5 million to support companies that are strategically important for job creation and economic development reasons by providing targeted investment to help these companies achieve clean, cheaper, and more reliable energy. DECD identifies companies and funding levels and CEFIA works with the company to maximize energy savings or clean energy production.

Table 3. CEBS Overview for FY 2013 and FY 2014 (as of June 30, 2014)

Program Data	Approved	Closed Not Yet Complete	Closed and Completed	Total
Projects	-	2	-	2
Installed Capacity (MW)	-	0.06	-	0.06
Clean Energy Produced (MWh) <sup>4</sup>	-	1,497	-	1,497
Energy Saved (MMBtu) <sup>5</sup>	-	708	-	708
Subsidies (\$'s)	-	\$750,000	-	\$750,000
Credit Enhancement (\$'s)	-	-	-	-
Loans or Leases (\$'s)	-	-	-	-
Total CEFIA Investment (\$'s)	-	-	-	-
Private Capital (\$'s)	-	-	-	-

CEFIA has worked with DECD to identify projects to utilize nearly all of the remaining CEBS funding. DECD is in the process of negotiating with the companies and bringing final proposals to CEFIA, which is expected to happen for most of the remaining projects in fiscal year 2015. The CEBS program is estimated to have created 3 direct and 5 indirect and induced jobs years and 776 tons of CO2 emissions reduced over the life of the projects.

<sup>2</sup> Over the life of the measure(s)

<sup>3</sup> First year of the measure(s)

<sup>4</sup> Over the life of the measure(s)

<sup>5</sup> First year of the measure(s)

For a breakdown of the use of CEFIA resources for Commercial and Industrial Programs, see table 4 below.

**Table 4. Distribution of CEFIA Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases from FY 2013 and FY 2014 (as of June 30 2014)**

Program	Subsidies	Credit Enhancements	Loans and Leases	Total
C-PACE	-	-	\$19,429,220	\$19,429,220
CEBS	\$750,000	-	-	\$750,000
<b>Total</b>	<b>\$750,000</b>	<b>-</b>	<b>\$19,429,220</b>	<b>\$20,179,220</b>

Of the \$20 million of CEFIA resources invested, 5% was in subsidies, 0% was in Credit Enhancements, and 95% was in Loans and Leases.

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 5):

**Table 5. Program Progress Made from FY 2013 and FY 2014 (as of June 30, 2014)**

Key Metrics	C-PACE	Clean Energy Business Solutions	Total Program Progress
Date of Program Approval	Sep 2012	Sep 2012	-
Date of Program Launch	Jan 2013		-
Ratepayer Capital at Risk	\$19,429,220	\$750,000	\$20,179,220
Private Capital	\$6,149,708	-	\$6,149,708
Deployed (MW)	3.39	0.06	3.45
# of Loans/Installations	26	2	28
Lifetime Production (MWh)	80,622	1,497	82,119
Annual Saved (MMBtu)	42,840	708	43,548
Full Time Equivalent Staff	5.35	.3	5.65

## Lessons Learned

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

- **Deeper Energy Savings** – C-PACE projects are achieving 40-50% energy savings on comprehensive retrofits. The legislative requirement that the savings-to-investment ratio (SIR) is encouraging developers and property owners go deeper as they investigate the economics of multiple measures and different combinations of measures. The program has closed fewer projects in 2014 than it anticipated, but they were larger in scale.
- **Sell-down** – CEFIA’s investment in C-PACE, both with capital through the Warehouse and with human resources, yielded a successful year. Through its involvement from deal origination to ultimately selling down the portfolio, CEFIA proved the model of C-PACE financing.

- **Application Review** – Early screening of C-PACE applications is important. As the program becomes self-sufficient the CT Green Bank must become more discerning early on to ensure properties meet program requirements.
- **Underwriting** – Robust technical and financial underwriting are critical for accessing capital. The sell-down was important for CEFIA to discern what capital providers in this space deem important.
- **Building Demand** – Contractor training and support is key for building volume. This is a very time intensive component of the program.

### Commercial and Industrial Sector Programs FY 2015 Quarterly Targets

Of programs being implemented in the Commercial and Industrial Sector Programs, the following is a breakdown of the key quarterly targets (see Tables 6-9):

**Table 6. Number of Projects**

Program	FY 2015 Q1 (Jul-Sep)	FY 2015 Q2 (Oct-Dec)	FY 2015 Q3 (Jan-Mar)	FY 2015 Q4 (Apr-Jun)
C-PACE	19	19	6	19
Total	19	19	6	19

**Table 7. Capital Deployed**

Program	FY 2015 Q1 (Jul-Sep)	FY 2015 Q2 (Oct-Dec)	FY 2015 Q3 (Jan-Mar)	FY 2015 Q4 (Apr-Jun)
C-PACE	\$15,000,000	\$15,000,000	\$5,000,000	\$15,000,000
Total	\$15,000,000	\$15,000,000	\$5,000,000	\$15,000,000

**Table 8. Clean Energy Deployed (MW)**

Program	FY 2015 Q1 (Jul-Sep)	FY 2015 Q2 (Oct-Dec)	FY 2015 Q3 (Jan-Mar)	FY 2015 Q4 (Apr-Jun)
C-PACE	2.653	2.653	0.884	2.653
Total	2.653	2.653	0.884	2.653

**Table 9. Annual Clean Energy Generated and Saved (MMBtu)**

Program	FY 2015 Q1 (Jul-Sep)	FY 2015 Q2 (Oct-Dec)	FY 2015 Q3 (Jan-Mar)	FY 2015 Q4 (Apr-Jun)
C-PACE	34,355	34,355	11,452	34,355
Total	34,355	34,355	11,452	34,355

To achieve these quarterly targets, the Commercial and Industrial Sector Programs will focus its programmatic expenses in the following areas:

- **Private Capital** – Create more opportunities for the private sector to invest in CT. The CEFIA team was successful in FY 2014 in originating and financing transactions directly. However, in order for the program to scale, we need to create pathways for private



capital to enter the market. We will explore new partnerships with private capital, energy service companies, and consultants to directly bring transactions into the program.

- **Application Process** – We need to continue to streamlining the application process and cut down on administrative costs to review applications. While C-PACE has made enormous strides in streamlining the processes for loan intake, loan underwriting/approval, and disbursement of funds - we need to continue to streamlining these processes in order to move at the speed of business and remain an attractive options for the wide variety of buildings that are eligible for C-PACE.
- **New Markets** – We need to focus on unmet market segments – such as multi-family and non-profits. Additionally, we need to target areas of gas expansion. Gas expansion in the state opening up an enormous opportunity for energy efficiency since C-PACE loans are underwritten largely on energy cost savings, which are significant with this measure. Embarking on partnership with all the gas utilities - they are very excited for this as a sales tool. Also an enormous opportunity for CHP and fuel cells.
- **Microgrids** – The legislation is in place now we need to find commercial microgrid/district energy projects and prove the model.
- **Cross-Agency Collaboration** – There are enormous opportunities and too little collaboration among state agencies, particularly CI and DECD. Their projects with manufacturers in particular could benefit from C-PACE financing and their outreach efforts could be a great pipeline opportunity for the program.



**CLEAN ENERGY**  
**FINANCE AND INVESTMENT AUTHORITY**

# Memo

**To:** Board of Directors of the Clean Energy Finance and Investment Authority

**From:** Andy Brydges (Director of Institutional Programs), Lucy Charpentier (Manager of Evaluation, Measurement and Verification), Bryan Garcia (President and CEO), Mackey Dykes (Chief of Staff)

**Cc:** Jessica Bailey (Director of Commercial and Industrial Programs), Dale Hedman (Director of Statutory and Infrastructure Programs), Bert Hunter (EVP and CIO), and Kerry O'Neill (Director of Residential Programs)

**Date:** July 11, 2014

**Re:** Institutional Sector Programs – Program Performance towards Targets (FY 2013 and FY 2014 Program Performance towards End of 2014 Targets)

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## Overview

As part of CEFIA's goal of attracting and deploying capital to finance the clean energy goals of Connecticut, we have initiated institutional sector programs to support the State and its efforts to work with municipalities through the "Leading by Example" program and to go further into communities with assistance to its universities, schools, hospitals, and other important non-profit organizations. It should be noted that these programs, and their staffing, are still in start-up having had only a year's worth of implementation.

For a program description and information on the Total Addressable Market and Serviceable Addressable Market (SAM), please see the FY 2015 and FY 2016 Comprehensive Plan.

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## Performance Targets and Progress

With respect to the Comprehensive Plan approved by the Board of Directors of CEFIA on September 28, 2012, the following are the performance targets through 2014 and the progress made thus far for in FY 2013 and FY 2014 for the Institutional Sector Programs (see Table 1). Also, for comparative purposes, included are the total performance targets for all programs through 2014.

**Table 1. Program Performance Targets and Progress Made to the Comprehensive Plan as of June 30, 2014**

Key Metrics	Program Performance Targets	Program Progress	Overall Targets
CEFIA Investment at Risk <sup>1</sup>	\$2,000,000	\$751,228	\$45,300,000
Private Capital	\$8,000,000	\$120,788	\$186,600,000
Deployed (MW)	5.0	0	51.1
# of Loans/Projects	30	2	5,283
Annual Saved (MMBtu)	5,000	13,320	180,000

### Institutional Sector Programs

The following are brief descriptions of the progress made under the last comprehensive plan in the Institutional Sector Programs

- **Campus Efficiency Now** – a loan program in partnership with the Connecticut Conference of Independent Colleges (CCIC) and GreenerU that provided up to \$1 million in CEFIA funds (into a special purpose vehicle) approved by the Board of Directors to engage in Energy Savings Agreements (ESAs) with several private colleges and universities. These ESAs will allow colleges and universities to undertake energy efficiency measures without the need for upfront capital and pay for them through the savings that are delivered over time.

**Table 2. Campus Efficiency Now Overview for FY 2013 and FY2014 (as June 30, 2014)**

Program Data	Approved	Closed not yet Completed	Closed and Completed	Total
Projects	-	1	1	2
Installed Capacity (MW)	-	-	-	-
Clean Energy Produced (MWh) <sup>2</sup>	-	-	-	-
Energy Saved (MMBtu) <sup>3</sup>	-	11,354	1,966	13,320
Subsidies (\$'s)	-	-	-	-
Credit Enhancement (\$'s)	-	-	-	-
Loans or Leases (\$'s)	-	\$500,093	\$251,136	\$751,228
Total CEFIA Investment (\$'s)	-	\$353,845	\$130,340	\$484,185
Private Capital (\$'s)	-	\$88,461	\$32,327	\$120,788

The Campus Efficiency Now program is estimated to have created 5 direct and 8 indirect and induced jobs years.

<sup>1</sup> Includes funds from the Clean Energy Fund, RGGI allowance revenue, repurposed ARRA-SEP funds, and other resources that are managed by CEFIA that are committed and invested in subsidies, credit enhancements, and loans and leases.

<sup>2</sup> Over the life of the measure(s)

<sup>3</sup> First year of the measure(s)

- **CT Solar Lease** – a loan-lease program that provides approximately \$12 million in public and private funding through the Connecticut Solar Lease Program to provide Power Purchase Agreements (PPAs) for solar PV to creditworthy commercial and institutional end-users of electricity. This program will support solar PV projects between 50-200 kW in size – with an average size of 75 kW.
- **Lead by Example** – The State of Connecticut created a standardized ESPC Program for use by state agencies and municipalities, as required by Connecticut General Statutes 16a-37x. CEFIA assists the Department of Energy and Environmental Protection (DEEP) in the implementation of the ESPC program. The program is intended to help state and municipal governments implement a portfolio of comprehensive energy savings measures with no upfront capital. The costs of the energy retrofits are paid for by guaranteed future savings from utility and maintenance budgets. ESPC projects will be implemented by Qualified Energy Service Companies (QESPs) that are on contract with the State of Connecticut to implement ESPC projects for municipalities and state agencies and have committed to follow the rules and guidelines of the ESPC program. In addition, project hosts will receive technical support from a pool of pre-qualified professional energy engineers that are available to review and interpret the QESPs work during the project development and contracting process. Program and technical support for both state and municipal project sponsors includes assistance in evaluating projects, defining eligible conservation and renewable energy measures, monitoring and verifying the energy savings, qualifying additional technical service providers, and managing data.

For a breakdown of the use of CEFIA resources for Institutional Programs, see table 4 below.

**Table 3. Distribution of CEFIA Funds Invested in Projects and Programs through Subsidies, Credit Enhancements, and Loans and Leases from FY 2013 and FY 2014 (as of June 30, 2014)**

Program	Subsidies	Credit Enhancements	Loans and Leases	Total
CEN	-	-	\$751,228	\$751,228
CT Solar Lease	-	-	-	-
LBE	-	-	-	-
<b>Total</b>	-	-	<b>\$751,228</b>	<b>\$751,228</b>

Of the \$751,228 of CEFIA resources invested, 100% was in the form of Loans through the Campus Efficiency Now program.

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 5):

**Table 4. Program Progress Made from FY 2013 and FY 2014 (as of June 30, 2014)**

Key Metrics	Campus Efficiency Now	CT Solar Lease	Lead By Example	Total Program Progress
Date of Program Approval	Jul 2012	June 2013	-	-
Date of Program Launch	Sept 2012	Sept 2013	-	-
Ratepayer Capital at Risk	-	-	-	\$751,228
Private Capital	-	-	-	\$120,788
Deployed (MW)	-	-	-	-

Key Metrics	Campus Efficiency Now	CT Solar Lease	Lead By Example	Total Program Progress
# of Loans/Installations	2	-	-	2
Lifetime Production (MWh)	-	-	-	-
Annual Saved (MMBtu)	13,320	-	-	13,320
Full Time Equivalent Staff	.6	.35	.3	1.25

In addition to the financing programs for state and municipal customers, CEFIA is currently developing programs for multifamily properties as well. See the Comprehensive Plan for details.

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### Lessons Learned

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

1. **Institutional Sector Projects will be large** – Institutional facilities commonly entail multiple buildings and aging infrastructure across a variety of building systems; therefore, programs that can finance comprehensive retrofits are important. Available funding for the Campus Efficiency Now program was insufficient to be attractive to several potential customers who had identified larger, more comprehensive projects to be done on their campuses. At the same time, developing comprehensive projects requires long gestation periods, both due to the complexity of the analyses required to identify suites of efficiency measures, and the bureaucracy common in Institutional Sector facilities that extends approval times.
  2. **A streamlined Performance Contracting process can rapidly scale** – The State’s standardized ESPC program, with guaranteed savings, significant technical support and program oversight, pre-approved contracting documents, and pre-qualified vendors, gives state agencies and municipalities confidence that significant energy savings will materialize with no upfront cost.
  3. **Off-credit Energy Savings Agreements will be an important alternative financing mechanism for the Institutional Sector** – Energy Savings Agreements can be structured as an off-credit financing mechanism that does not represent a long-term debt obligation for the Institution. This is an important factor for credit-constrained non-profit Institutional Sector customers such as private colleges and universities and hospitals that would take advantage of performance contracting, but cannot take advantage of the more common forms of financing ESPC projects such as bonds or tax exempt lease purchasing. CEFIA will seek to expand the ESA structure piloted by the Campus Efficiency Now program by leveraging private capital in FY2015 to create more and larger opportunities for Institutional Sector projects to participate.
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### Institutional Sector Programs FY 2015 Quarterly Targets

Of the programs being implemented in the Institutional Sector Programs, the following is a breakdown of the key quarterly targets for each program (see Tables 5-8):

**Table 5. Number of Projects**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
LBE – State	2	1	2	2
LBE - Municipal	0	0	2	4
CT Solar Lease	2	4	2	2
Institutional Off-Credit ESA	0	1	0	1
<b>Total</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>9</b>

**Table 6. Capital Deployed**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
LBE – State	\$40,000,000	\$25,000,000	\$30,000,000	\$30,000,000
LBE - Municipal	\$0	\$0	\$10,000,000	\$15,000,000
CT Solar Lease	\$1,200,000	\$2,400,000	\$1,200,000	\$1,200,000
Institutional Off-Credit ESA	\$0	\$5,000,000	\$0	\$5,000,000
<b>Total</b>	<b>\$41,200,000</b>	<b>\$32,400,000</b>	<b>\$41,200,000</b>	<b>\$51,200,000</b>

**Table 7. Clean Energy Deployed (MW)**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
LBE – State	0	0	0	0
LBE - Municipal	0	0	0	0
CT Solar Lease	0.4	0.8	0.4	0.4
Institutional Off-Credit ESA	0	0	0	0
<b>Total</b>	<b>0.4</b>	<b>0.8</b>	<b>0.4</b>	<b>0.4</b>

**Table 8. Annual Clean Energy Generated and Saved (MMBtu)**

<b>Program</b>	<b>FY 2015 Q1 (Jul-Sep)</b>	<b>FY 2015 Q2 (Oct-Dec)</b>	<b>FY 2015 Q3 (Jan-Mar)</b>	<b>FY 2015 Q4 (Apr-Jun)</b>
LBE – State	76,191	38,095	76,191	76,191
LBE - Municipal	0	0	55,556	111,111
CT Solar Lease	1,674	3,348	1,674	1,674
Institutional Off-Credit ESA	0	33,334	0	33,334
<b>Total</b>	<b>77,864</b>	<b>74,776</b>	<b>133,420</b>	<b>222,309</b>

To achieve these quarterly targets, the Institutional Sector Programs will focus its programmatic efforts in the following areas:

- **Performance Contracting** – Fully operationalizing the state’s ESPC program is the highest priority for the Institutional sector, as it is applicable to the largest portion of the Institutional market (state and municipal facilities) and represents a tremendous savings and job creation opportunity. Finalizing a mechanism for financing state agency projects is the most important task. Beyond that, developing a process for other state stakeholders to engage in the development of the projects (including the Department of Construction Services and the State Historical Preservation Office) without unduly delaying their implementation is important, as is commissioning an online data platform

to facilitate tracking of each project's performance. Further outreach to the municipal market to grow the model in that market segment will also be a key initiative.

- **Development of an Off-Credit ESA model** – Together with the C&I sector, the Institutional sector will work to develop an off-credit model to finance comprehensive projects (likely including guaranteed Performance Contracts) for customers that are prohibited from or constrained by their ability to enter into long term debt obligations that commonly fund such projects.
- **Negotiating and closing Solar Lease deals** – The Solar Lease program has garnered interest from a variety of potential municipal and state agency project hosts. Working with those that have secured ZRECs to close Solar Lease financings, and conducting outreach to other potential customers so that they can begin the process of securing ZRECs will be the focus of our efforts.

# CONNECTICUT GREEN BANK

## VICE PRESIDENT & CHIEF OPERATING OFFICER

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**Class Title:** EVP & COO

**Direct Reports:** As Assigned

**Salary Range:** \$116,250 to \$183,750

**Career Series:** Officer

**Reports to:** President and CEO

**Wage Hour Class:** Exempt

**Hours Worked:** 40

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### **SUMMARY:**

The Connecticut Green Bank's (the Green Bank) Executive Vice President & Chief Operating Officer (EVP & COO) is responsible for managing the internal organization processes and infrastructure that will allow the Green Bank to grow, fulfill its mission and provides general management in the absence of the President & CEO. Qualified candidates will hold at least a bachelor's degree plus eight (8) or more years' experience in positions of increasing responsibility that involve organizational management. Administrative experience in the public or non-profit sector preferred.

The EVP & COO will direct the Green Bank's effective and efficient operations. Responsible for planning, developing and implementing a comprehensive plan and budget, organize and support the operations for corporate, program, and investment divisions, and ensure continuous improvement of systems, processes, and procedures.

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

### **EXAMPLES OF DUTIES:**

- Acts as the Chief Operating Officer and assistant to the President & CEO of the Green Bank and provides general management to the corporate, program, and investment staff;
- Contributes to the development of the Green Bank's strategic goals and objectives as well as the overall management of the organization;
- Assists with the development and implementation of a comprehensive plan and works with the President & CEO to align human resources towards the plan;
- Assists in the development and implementation of strategies to improve operations and structures for the program functions of the agency, including process and work flow procedures, program performance dashboards, and other mechanisms to support effective and efficient operations;
- Oversee, direct, and organize the work of the operations/support teams;
- Promote a culture of high performance and continuous improvement that values learning, commitment to quality, leadership and initiative;
- Upgrade and implement an appropriate system of policies, internal controls, standards, and procedures that are consistent with the mission and goals of a green bank;
- Work with the Chief Legal Officer to ensure adequate control and compliance processes are established;
- Work with the Chief Investment Officer to ensure adequate risk management and investment compliance processes are established;
- Plan, coordinate, and execute the annual budget process with the assistance of the Vice President of Finance and Administration;



- Implement and lead a continuous quality improvement process throughout the program and service areas, focusing on systems/process improvement;
- Advise the president and other key members of senior management on financial planning, budgeting, cash flow, investment priorities, and policy matters;
- Determines appropriate staffing levels and coordination of staff; and, oversee the preparation of recommendations and evaluation of programs and initiatives;
- Develops and assists in the implementation of new initiatives and strategic investments;
- Provides such general management functions and other duties as required.

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

- Ability to address managerial matters with attention to detail, as well as the facility to keep in mind the larger framework.
- Considerable ability to exercise judgment and critical thinking to act on own initiative as appropriate.
- Have considerable ability and willingness to function constructively as a leader or a participant in one or more teams.
- Have considerable knowledge of and the ability to apply management principles and techniques as well as considerable knowledge of business operations and general management.
- Requires considerable knowledge of federal and state laws, statutes and regulations.
- Has the ability to analyze and interpret financial statements, business plans and other complex financial and legal concepts and documents.
- Considerable ability to respond flexibly and adapt to changing circumstances.
- Considerable oral and written communications and strong negotiating skills.

**EXPERIENCE AND TRAINING:**

General Experience

Bachelor's degree plus eight (8) or more years' experience in positions of increasing responsibility that involve organizational management. Administrative experience in the public or private sector preferred.

Special Experience Required: Two years of the general experience must have been in a managerial capacity with responsibility for managing people, projects and/or budgets, and may include supervisory or professional experience with management-level responsibilities.

Substitutions Allowed:

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

**CAREER SERIES**

The career series for this classification is:

- Assistant
- Associate
- Manager
- Senior Manager
- Associate Director
- Director I
- Director II

**CUSTOMER SERVICE DELIVERABLES:**

- Responds promptly to customer requests for information or assistance.
- Acts as a member of the team and pitches in and assists other staff members as requested.
- Provides a work product that is complete, well-organized and useful to the customer.

**APPOINTMENT**

Appointed by the Connecticut Green Bank Board of Directors in accordance with Sec. 99. Section 16-245n (d) of the Connecticut General Statutes.