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CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

August 19, 2014

Dear Connecticut Green Bank Board of Directors:

Our next meeting of the Board of Directors will be on Tuesday, August 26, 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. This is a special meeting.

On the agenda we have:

- **Statutory and Infrastructure Sector Programs** – we will be bringing forth a recommendation for Step 5 of the RSIP. Step 5 is a "race to the rooftop" of 10 MW at an incentive level that is equivalent to a $50 ZREC and approximately 25% less than Step 4. The proposed Step 5 incentive of $0.65/W is over a 60% reduction from the Step 1 incentive of $1.78/W when the RSIP began in March of 2012. The RSIP has approved over 30 MW of projects, which when completed, will have achieved the legislative target 8 years ahead of schedule. Our goal is to continue to support the market momentum and propose legislation in the 2015 session that would allow the Green Bank to recover its program expenses from the incentives through REC revenues received from the Class I RPS policy. We are discussing this proposal with the Deployment Committee on Wednesday, August 20th – so the proposal in this mailing is subject to change based on those deliberations.

- **Residential Sector Programs** – given the success we have been having with the CT Solar Loan, we are proposing an extension of the warehouse from $5 million to $10 million to continue the progress we have been making. We expect to improve the product by offering a 20-year term – alongside the current 15-year term – and to allow battery storage to be financed as part of the package. As we have done with the first $5 million warehouse, we will seek to identify a buyer willing to purchase $4 million of residential solar PV loans from the Green Bank. Also, we will be providing the Board of Directors with an update on the CT Solar Lease generally, and specifically what we are doing with regards to managing risk through interest rate swaps for the syndicated debt portion of the financing structure.

- **Commercial Sector Programs** – we are bringing several C-PACE transactions for approval. We are revisiting the In Sport transaction and bringing forth a new transaction with VKR Ventures.

- **Recurring Personal Service Agreements** – there are several subcontractors that the Green Bank has been working with over the past several years that are integral to the success of various programs that we have been implementing. For example, SRS is our technical underwriter for the C-PACE program, Smart Power is our community marketing partner for Solarize, Marketing Drive is our external marketing firm supporting various

residential and commercial products, Power Clerk supports the front-end approval process for the RSIP, and Locus provides monitoring services for the RSIP. Each of these subcontractors has appropriately gone through our Operating Procedure process and their services are a part of the FY 2015 budget. We are seeking approval to engage in PSA's with them to continue the progress we are making with our programs and products.

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

We look forward to seeing you next week.

Sincerely,

Bryan Garcia
President and CEO

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

AGENDA

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

Tuesday, August 26, 2014
Special Meeting
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 25, July 3, and July 18, 2014* – 5 minutes

4. Statutory and Infrastructure Updates and Recommendations* – 45 minutes

   a. Residential Solar Investment Program – Step 5*

5. Residential Sector Program Updates and Recommendations* – 30 minutes

   a. CT Solar Loan* (i.e., expansion of the warehouse, inclusion of battery storage, and 20-year term)

   b. CT Solar Lease

6. Commercial Sector Program Updates and Recommendations* – 10 minutes

   a. C-PACE Transactions*

      i. Trumbull – C-PACE Transaction
      ii. Newington – C-PACE Transaction

   b. Revision to C-PACE Resolutions*

7. Operations Matters – Personal Services Agreements* – 15 minutes

8. Adjourn

*Denotes item requiring Board action

Join the meeting online at https://www4.gotomeeting.com/join/601443735

Dial +1 (312) 757-3121 Access Code: 601-443-735

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 (REVISED)

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

Tuesday, August 26, 2014
Special Meeting
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 25, July 3, and July 18, 2014* – 5 minutes

Resolution #1

Motion to approve the minutes of the Board of Directors meeting for June 25, 2014, July 3, 2014, and July 18, 2014. Second. Discussion. Vote.

4. Statutory and Infrastructure Updates and Recommendations* – 45 minutes

a. Residential Solar Investment Program – Step 5*

Resolution #2

WHEREAS, Section 106 of Public Act 11-80 "An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future" (the "Act") requires the Connecticut Green Bank ("Green Bank") to design and implement a Residential Solar Photovoltaic ("PV") Investment Program ("Program") that results in a minimum of thirty (30) megawatts of new residential PV installation in Connecticut before December 31, 2022;

WHEREAS, as of August 1, 2014, the Program has thus far resulted in approximately thirty-two megawatts of new residential PV installation application approvals in Connecticut, and when complete and commissioned will achieve the minimum target of thirty megawatts established by Section 106 of Public Act 11-80;

WHEREAS, pursuant to Conn. Gen Stat. 16-245a, a renewable portfolio standard was established that requires that Connecticut Electric Suppliers and Electric Distribution Company Wholesale Suppliers obtain a minimum percentage of their retail load by using

renewable energy.

WHEREAS, the Green Bank has been assigned by New England Power Pool Generation Information System an Identification Number NON36589 for the residential solar PV projects it supports through the Program, and subsequently the Public Utility Regulatory Authority assigned a Registration No. CT 00534-13 to the behind-the-meter facilities supported by the Program;

WHEREAS, real-time revenue quality meters are included as part of solar PV systems being installed through the Program that determine the amount of clean energy production from such systems as well as the associated renewable energy credits ("RECs") which, in accordance with Program guidelines, become the property of the Green Bank to hold, manage and sell in the Green Bank's sole discretion;

WHEREAS, the Green Bank Board of Directors (the "Board") approved Guidelines and Procedures for the Green Bank Management of Class I REC Asset Portfolio on December 11, 2013; and

WHEREAS, pursuant to Section 106 of the Act, the Green Bank has prepared a Program plan with a declining incentive block schedule ("Schedule") that offer direct financial incentives, in the form of homeowner performance-based incentives ("HOPBI") or performance-based incentives ("PBI"), for the purchase or lease of qualifying residential solar photovoltaic systems, respectively.

NOW, therefore be it:

RESOLVED, that the Board approves of the Schedule of Incentives as set forth in Table 3(B) of the Due Diligence Package dated August 20, 2014 to achieve 10.0 MW of solar PV deployment;

RESOLVED, that the Board directs staff that at the point where 6.0 MWs of committed capacity is reached during Step 5 of the Schedule, or earlier if staff deems it appropriate, to release a report that makes a recommendation to the Deployment Committee on the Step 6 and beyond for capacity allocation and incentive levels;

RESOLVED, that by (a) the point of the Step 5 incentive where 8.0 MW of committed capacity is reached for either the PBI or the HOPBI models or (b) June 30, 2015 whichever comes first, the Board will approve a Step 6 capacity allocation and incentive level to ensure the sustained and orderly deployment of the residential solar market in Connecticut; and

RESOLVED, that the Board hereby directs Green Bank staff to develop a proposal to address the sustainability of the Program in light of the growing market demand while increasing deployment of clean energy sources in Connecticut and minimizing the cost to the ratepayers by giving consideration to the aggregation and sale of RECs acquired through the Program.

5. Residential Sector Program Updates and Recommendations* – 30 minutes

   a. CT Solar Loan* (i.e., expansion of the warehouse, inclusion of battery storage, and 20-year term)

Resolution #3

WHEREAS, under Section 99 of Public Act 11-80 "An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future," the Connecticut Green Bank (the "Green Bank") is directed to, amongst other things, develop separate programs to finance and otherwise support clean energy investment in residential, municipal, small business and larger commercial projects and such others as the Green Bank may determine;

WHEREAS, the CT Solar Loan Program (the "Program") supports homeowners who desire to purchase solar PV systems for their homes with low-cost, long-term financing, in line with Public Act 11-80, the State's Comprehensive Energy Strategy, and the Green Bank's Comprehensive Plan;

WHEREAS, having nearly exhausted the Green Bank's initial authorization of $5,000,000 in revolving loan advances for the Program, as approved by the Board of Directors on July 19, 2013, Green Bank staff now seeks authorization to lend to a new CT Solar Loan subsidiary for the purposes of funding loans to be granted to Connecticut homeowners under the Program;

NOW, therefore be it:

RESOLVED, that the Board of Directors grants approval for the Green Bank to create a new CT Solar Loan subsidiary for the sole purpose of funding further loans to be granted to Connecticut homeowners under the Program;

RESOLVED, that the Board of Directors grants approval for the Green Bank to make advances to this new CT Solar Loan subsidiary, for Program lending inclusive of originating loans to homeowners with tenors of up to 20 years and inclusive of battery storage systems, subject to the following limits:

A. A maximum limit for all long-term loans, subordinated to senior investors, of $1,000,000; and

B. A maximum limit for revolving loan advances, to aggregate a portfolio of Program loans, in the amount of $5,000,000, for a period not to exceed three (3) years;

RESOLVED, that the President of the Green Bank, and any other duly authorized officer of the Green Bank, is authorized to execute and deliver any contract or other legal instrument necessary to effect the acquisition of a portion of the portfolio of Program loans by one or more senior investors on such terms and conditions as are materially consistent with the term sheet dated November 21, 2012 and approved by the Deployment Committee and the memorandum submitted to the Board of Directors on July 12, 2013, except as modified herein, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers, no later than twelve (12) months from the date of this resolution; and

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

b. CT Solar Lease

6. Commercial Sector Program Updates and Recommendations* – 10 minutes

a. C-PACE Transactions*

i. Trumbull – C-PACE Transaction

Resolution #4

WHEREAS, on October 18, 2013 the Connecticut Green Bank (the "Green Bank") Board of Directors approved a construction and term loan under the C-PACE program in the amount of $1,001,298 to ISCT Real Estate, LLC, the property owner of 29 Trefoil Drive, Trumbull, CT;

WHEREAS, the Green Bank and ISCT Real Estate, LLC entered into a C-PACE Financing Agreement on November 14, 2013 (the "Financing Agreement") for the installation of a 252 kW solar system and a variety of efficient lighting upgrades (the "Project");

WHEREAS, the Project faced construction delays and was not fully completed until mid-June, while the first payment was due under the Financing Agreement on July 1, 2014;

WHEREAS, requiring a property owner to begin repayment under a C-PACE Financing Agreement prior to having accrued almost any energy savings is not in the spirit of the C-PACE program, with its goal of delivering cash flow benefits to borrowers; and

WHEREAS, Green Bank seeks to provide a $21,110.08 term loan under the C-PACE program to ISCT Real Estate, LLC, the property owner of 29 Trefoil Drive, Trumbull, CT (the "Loan"), to finance the payment of ISCT Real Estate, LLC's first payment under the Financing Agreement.

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 with terms and conditions consistent with the memorandum submitted to the Board of Directors dated August 19, 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 August 26, 2014; 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. Newington – C-PACE Transaction

Resolution #5

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

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

WHEREAS, the Green Bank seeks to provide $750,000 construction and term loan under the C-PACE program to VKR Venture Associates LLC, the property owner of 819-835 North Mountain Road, Newington 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 dated August 19, 2014, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers no later than 120 days from August 26, 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.

b. Revision to C-PACE Resolutions*

Resolution #6

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

WHEREAS, pursuant to the C-PACE program the Green Bank Board of Directors (the "Board") has approved and authorized the President of the Connecticut Green Bank to execute financing agreements for the following six projects: Meriden YMCA (approved on 12/20/2013), Quality Inn, Vernon (approved on 12/20/2013), 255 Bank Street, Waterbury (approved 12/20/2013), 1095 Dayhill Road, Windsor (approved 12/20/2013), Brookfield YMCA (approved 4/25/2014), and 1200 High Ridge Road, Stamford (approved 4/25/2014) (collectively, the "Finance Agreements");

WHEREAS, the Finance Agreements were authorized to be consistent with the terms, conditions, and memorandums submitted to the Board and *shall be executed no later than 90 days from the date of Board approval*; and

WHEREAS, due to delays in fulfilling pre-closing requirements for the C-PACE transactions listed above the Green Bank will need more time to execute the Finance Agreements.

NOW, therefore be it:

RESOLVED, that the Board extends authorization of the Finance Agreements to no later than 360 days from the date of the original approval and consistent in every other manner with the original Board authorization for each Finance Agreement.

7. Operations Matters – Personal Services Agreements* – 15 minutes

Resolution #7

NOW, therefore be it:

RESOLVED, that the Connecticut Green Bank Board of Directors hereby authorizes Green Bank staff to extend the professional services agreements (PSAs) currently in place with:

i. Sustainable Real Estate Solutions, Inc.;
ii. Locus Energy, LLC;
iii. Clean Power Research, LLC;
iv. Marketing Drive, LLC; and
v. SmartPower, Inc.;

for the remainder of fiscal year 2015 with the amounts of each PSA not to exceed the applicable approved budget line item; 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 execute these extensions.

8. Adjourn

*Denotes item requiring Board action

Join the meeting online at https://www4.gotomeeting.com/join/601443735

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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

Board of Directors of the Connecticut Green Bank

Agenda Item #1

Call to Order

August 26, 2014

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #2

Public Comments

August 26, 2014

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #3

Approval of Meeting Minutes of June 25, July 3, and July 18, 2014

August 26, 2014

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #4

Statutory and Infrastructure Programs

August 26, 2014

Residential Solar Investment Program

Achieved Legislative Minimum Target

CLEAN ENERGY FINANCE AND INVESTMENT AUTHORITY

Achieved the legislative minimum target (30 MW) 8 years ahead of schedule (2022) and under budget

Residential Solar Investment Program
Benchmarking Progress of Neighbors

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

RSIP Incentive Step	Connecticut	Massachusetts	New Jersey	New York
Installed Cost ($/W)	$4.26	$4.85	$4.00	$4.90
State Incentives	$1.17	$2.90	$1.87	$1.68
Federal Incentives	$0.93	$0.59	$0.64	$1.17
Net Cost to Consumer	$2.16	$1.36	$1.49	$2.05
% of Installed Cost	51%	28%	37%	42%

CT is providing consumers less state incentive while delivering the same watts per capita as MA and likely more than NJ and NY

Residential Solar Investment Program
Benchmarking Progress In State

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

	Through Step 4 of RSIP	Rounds 1 and 2 of ZREC Actual		
	RSIP	Small	Medium	Large
Clean Energy Deployed (MW_{STC})	33.4	26.5	29.9	29.4
Ratepayer Funds Expended ($)	$42,314,916	$61,657,718	$62,722,512	$57,431,170

RSIP is **doing more** clean energy deployment **with less** ratepayer resources than any class of the ZREC

Reference
Discount rate used is the rate of inflation or 3% for ZREC present value cost of ratepayer funds expended.

Residential Solar Investment Program
Meeting with Installers

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Internal “deep dive” sessions – next generation of RSIP
- Conversations with the industry
  - National Market Leader – Solar City (30% market share)
  - Solar Connecticut – Local “Growth” (1-10% market share) and “Small” Installers (<1% market share)
- Key Messages
  - Green Bank is losing money – demand is outpacing incentives
  - Legislative target of 30 MW has been achieved – there is a GW market out there and subsidies aren’t the answer to scale
  - We don’t want to “pull the plug” on the market like in years past – we need commitment of the industry to work on a legislative fix for long-term contracts to secure REC revenue over time to offset RSIP expenses

Residential Solar Investment Program
Rebates (Version 1.0)

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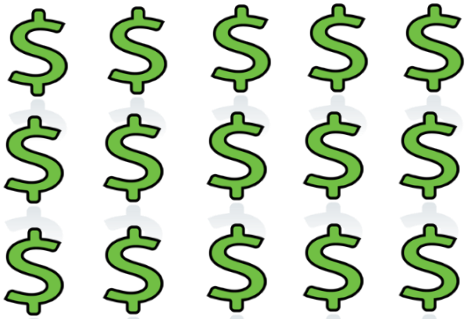
RPS Market (2014)

$150,000,000



RSIP

$9,000,000

Residential Solar Investment Program

RPS Market Intermediary (Version 2.0)

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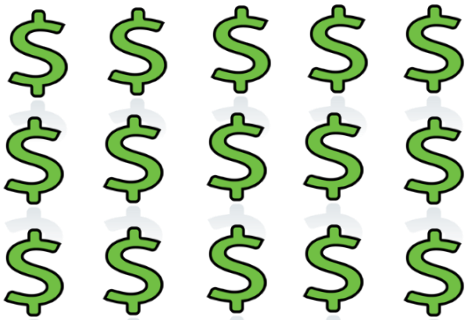
RPS Market (2014)

$150,000,000

15-Year Contracts for Class I RECs from Residential Solar in CT

RSIP

$10,000,000



Residential Solar Investment Program
REC Revenue ($/W)

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Year	**Estimated RECs Produced** (MWh)	**Estimated Current REC Price** ($)	**Estimated Current Present Value REC Revenue** ($/W)	**Estimated Future Present Value REC Revenue** ($/W)
0	-	-	-	-
1	1.139	55.33	$0.061	$0.055
…	…	…	…	…
15	1.062	12.50	$0.009	$0.034
Total			**$0.390**	**$0.658**

Residential Solar Investment Program

Incentive Reduction Comparison based on actual incentives awarded

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RSIP Incentive Step	HOPBI-EPBB ($/W)		PBI ($/kWh)	
	Incentive ($/W)	% Decrease	Incentive ($/W)	% Decrease
Step 1	$1.78	-	$1.78	-
Step 2	$1.55	13%	$1.85	(4%)
Step 3	$1.15	26%	$1.43	23%
Step 4	$0.88	23%	$1.14	20%
Step 5 (proposed target)	**$0.65**	**26%**	**$0.72**	**37%**

Reduced incentives by more than 60% in two years – to an equivalent ZREC price of $50/REC in Step 5

Residential Solar Investment Program
Step 5 Incentive Schedule Proposal

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RSIP Incentive Step	HOPBI-EPBB ($/W)			PBI ($/kWh)	
	≤5 kW	5 to 10 kW	>10 kW	≤10 kW	>10 kW
Step 1	$2.450	$1.250	$0.00	$0.300	$0.000
Step 2	$2.275	$1.075	$0.00	$0.300	$0.000
Step 3	$1.750	$0.550	$0.00	$0.225	$0.000
Step 4	$1.250	$0.750	$0.00	$0.180	$0.000
Step 5 (proposed)	**$0.80**		**$0.40**	**$0.125**	**$0.060**

The Step 5 proposed incentive schedule is designed to achieve the equivalent cost of the present value of a 15-year ZREC of $50 or $5 lower than the Class I RPS ACP

Residential Solar Investment Program

Step 5 Incentive Schedule Recommendation

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FINANCE AND INVESTMENT AUTHORITY

- "Race to the Rooftop" of 10 MW for Step 5 – no more buckets…open competition for HOPBI and PBI
- Move from the rebate model to Class I RPS policy intermediary – facilitate value of the RPS to the customer by monetizing the value of the REC (i.e. equivalent to $50 ZREC)
  - HOPBI – $0.80/W ≤ 10 kW; and $0.40/W > 10 kW
  - PBI – $125/MWh ≤ 10 kW; and $60/MWh > 10 kW
- Green Bank owns the REC and will sell it to generate REC revenues that offset the RSIP expenses

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Strategic Plan** – is the RSIP consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?
- **Ratepayer Payback** – How much clean energy is being produced from the project versus the dollars of ratepayer funds invested?
- **Terms and Conditions** – What are the terms and conditions of the ratepayer payback, if any?
- **Capital Expended** – How much of the ratepayer and other capital that the Green Bank manages is being expended on the project?
- **Risk** – What is the maximum risk exposure of ratepayer funds for the project?
- **Target Market** – Who are the end-users of the project?

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Strategic Plan** – is the RSIP consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?

As a Statutory Program in the CEFIA comprehensive plan (as required by Section 106 of PA 11-80), the **RSIP is consistent with that plan and the Board approved a budget** in the amount of $14,400,000 to support HOPBI-EPBB and PBI for FY 2015.

RSIP expended no more than $1.0 million to date for FY 2015 - $1.0 million for HOPBI-EPBB and $0.0 million for PBI

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Ratepayer Payback** – How much clean energy is being produced from the project versus the dollars of ratepayer funds invested?

RSIP Incentive Step	**Numerator** (Lifetime kWh)	**Denominator** ($ Invested)	**Objective Function** (kWh / $1)
Step 1	187,779	$11,769	16.0
Step 2	187,779	$9,569	19.6
Step 3	187,779	$7,119	26.4
Step 4	187,779	$5,019	37.4
Step 5 (proposed)	187,779	$1,819	103.2

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

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

- The incentive of $0.80/W offered under the Step 5 incentive schedule for the HOPBI and $125/MWh for the PBI is paid out after a 30-day performance period or over a 6-year period of time respectively based on system performance.
- The Green Bank owns all RECs associated with projects that receive an incentive. It is estimated that $0.39/W in revenue (in present value terms) will be received from the sale of RECs into the Class I RPS market under current and forecasted conditions – whereas if the Green Bank were to be able to sell its RECs to the utilities through a long-term contract similar to the ZREC program, then $0.66/W in revenue (in present value terms) could be received. However, a change in public policy during the 2015 legislative session would be required to achieve this result.

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

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

- By statute, the Green Bank shall apportion no more than one-third of the total surcharge collected annually, or approximately $9.2 million for the current fiscal year.
- For Step 5, with a “Race to the Rooftop” target of 10 MW and a proposed average incentive awarded of $0.65/W, then $6.5 million in incentives would be expended on the program over time (with the HOPBI being paid out within the first year of system installation and the PBI being paid out over six years).

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

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

- Despite the $3.9 million in REC revenue (in present value terms) that staff expects can be realized as a result of the program, staff expects that the maximum risk exposure for the program is $6.5 million – the estimated value of the incentives provided through Step 5 of the program to achieve the “Race to the Solar Rooftop” target of 10.0 MW. Given the variability of REC pricing, it would be difficult to ascertain the true value that the Green Bank would receive without a forward contract and a fixed price for RECs produced.

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

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

Per Section 106 of Public Act 11-80, the end-users of the RSIP are residential ratepayers. These ratepayers are interested in either owning (i.e. HOPBI) a solar PV system or paying a reduced or fixed electricity price by leasing (i.e. PBI) a solar PV system.

Nearly 15% of the projects supported in Step 1 through Step 4 are located in distressed communities.

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

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

- The funding support for the RSIP would be in the form of a HOPBI or PBI. When funds are disbursed by the Green Bank to payout the HOPBI or PBI earned to the system owner, these disbursement transactions will be reflected on the Green Bank's balance sheet as a reduction to "Cash" (current assets) with a corresponding entry on the profit and loss statement under "Operating Expenses" in the relevant ledger account under "Financial Incentives – HOPBI and PBI," which will have the effect of reducing unrestricted net assets. The HOPBI will be earned over a 30-day period and be paid out in full once earned while the PBI will be earned over a six-year period and be paid out over this six year period on a quarterly basis. For those HOPBI and PBI incentives which have not been paid out in full at the end of the Green Bank's fiscal year, the balance remaining to be paid out will be disclosed in a footnote to the audited financial statements as a future commitment against the Green Bank's unrestricted net assets.

Residential Solar Investment Program
Key Questions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

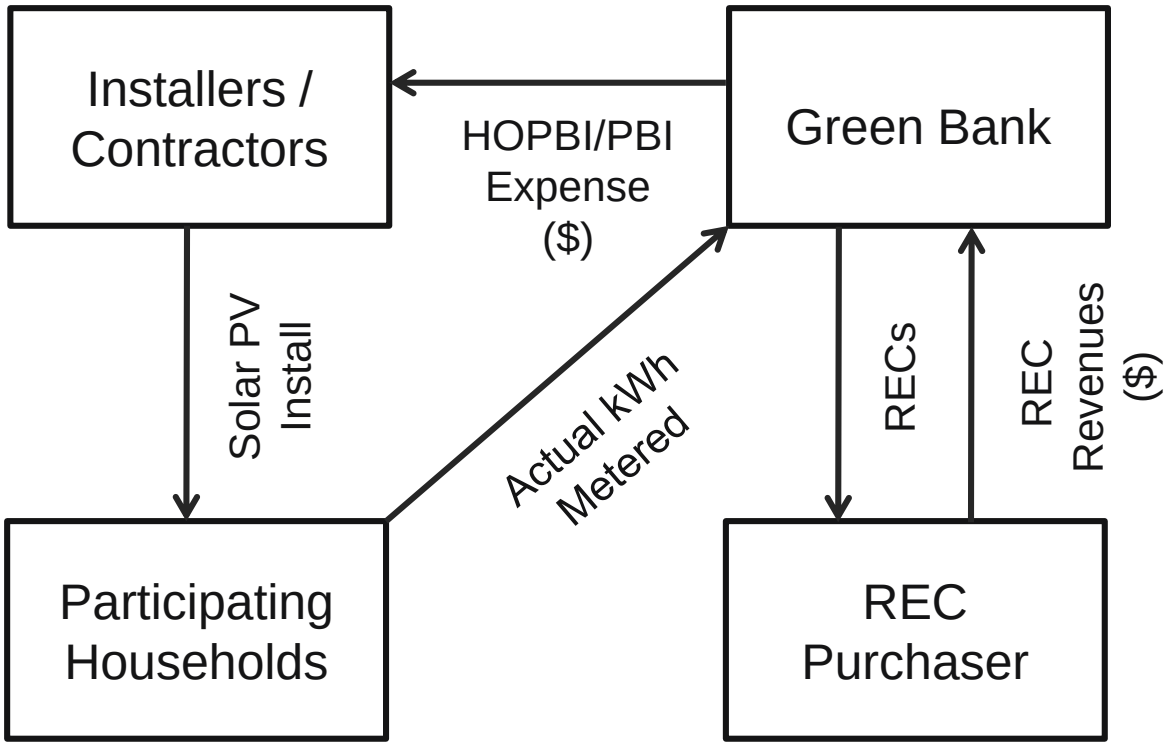
- **Financial Statements (cont'd)** – How is the program investment accounted for on the balance sheet and profit and loss statements?

- When a sale of RECs generated by these residential systems is consummated, the Green Bank will record the transaction as "Revenue – Residential RECs" on the profit and loss statement and record a corresponding entry on the balance sheet under "Receivables – Residential RECs". Once the Green Bank receives payment from the buyer, the "Receivable – Residential RECs" will be reduced and the Green Bank's operating "Cash" will be increased. **A footnote to the Green Bank's financial statements will disclose the anticipated future revenue stream for residential RECs the Green Bank expects will be generated and sold under this program.**

Residential Solar Investment Program
Key Questions

CLEAN ENERGY FINANCE AND INVESTMENT AUTHORITY

- **Capital Flow Diagram**



Residential Solar Investment Program
Key Questions

CLEAN ENERGY FINANCE AND INVESTMENT AUTHORITY

- **Capital Flow Table**

Year	HOPBI Expense ($/W)	Estimated RECs Produced (MWh)	Estimated Current REC Price ($)	Estimated Current Present Value REC Revenue ($/W)	Estimated Future Present Value REC Revenue ($/W)
0	($0.650)	-	-	-	-
1	-	1.139	55.33	$0.061	$0.055
…	-	…	…	…	…
15	-	1.062	12.50	$0.009	$0.034
Total	($0.650)			$0.390	$0.658
(Loss) / Profit				($0.26)	$0.008

Residential Solar Investment Program
Market to Policy Intermediary

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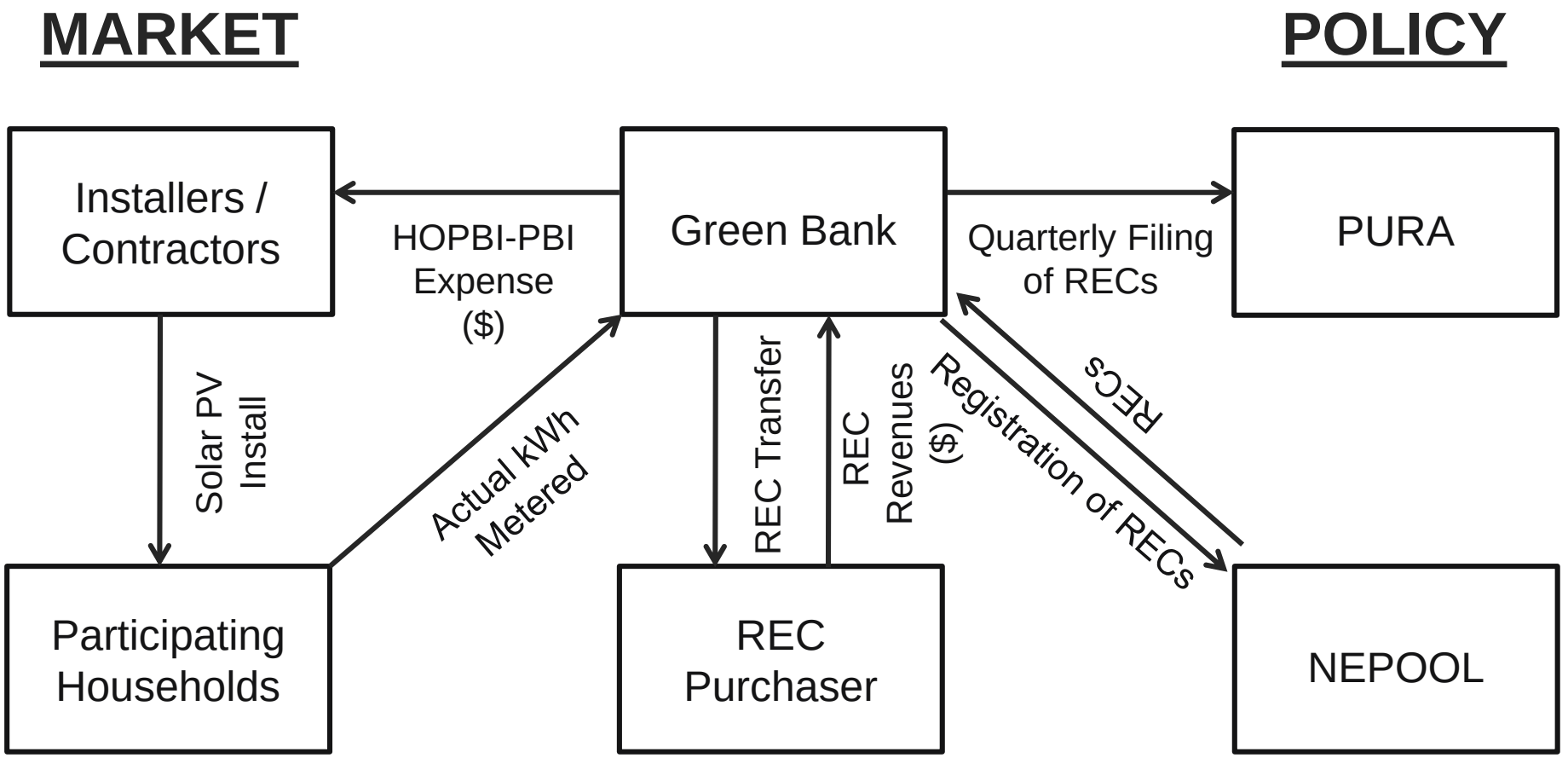
FINANCE AND INVESTMENT AUTHORITY



Residential Solar Investment Program
Objective Function

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

RSIP Incentive Step	**Numerator** (Lifetime kWh)	**Denominator** ($ Invested)	**Objective Function** (kWh / $1)
Step 1	187,779	$11,769	16.0
Step 2	187,779	$9,569	19.6
Step 3	187,779	$7,119	26.4
Step 4	187,779	$5,019	37.4
Step 5 (proposed)	187,779	$1,819	103.2

Reference
Assumes a 7 kW average sized solar PV system for the HOPBI-EPBB incentive

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FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #5a

Residential Sector Programs - Solar Loan Program

August 26, 2014

CT Solar Loan

Warehouse Increase & Program Changes

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

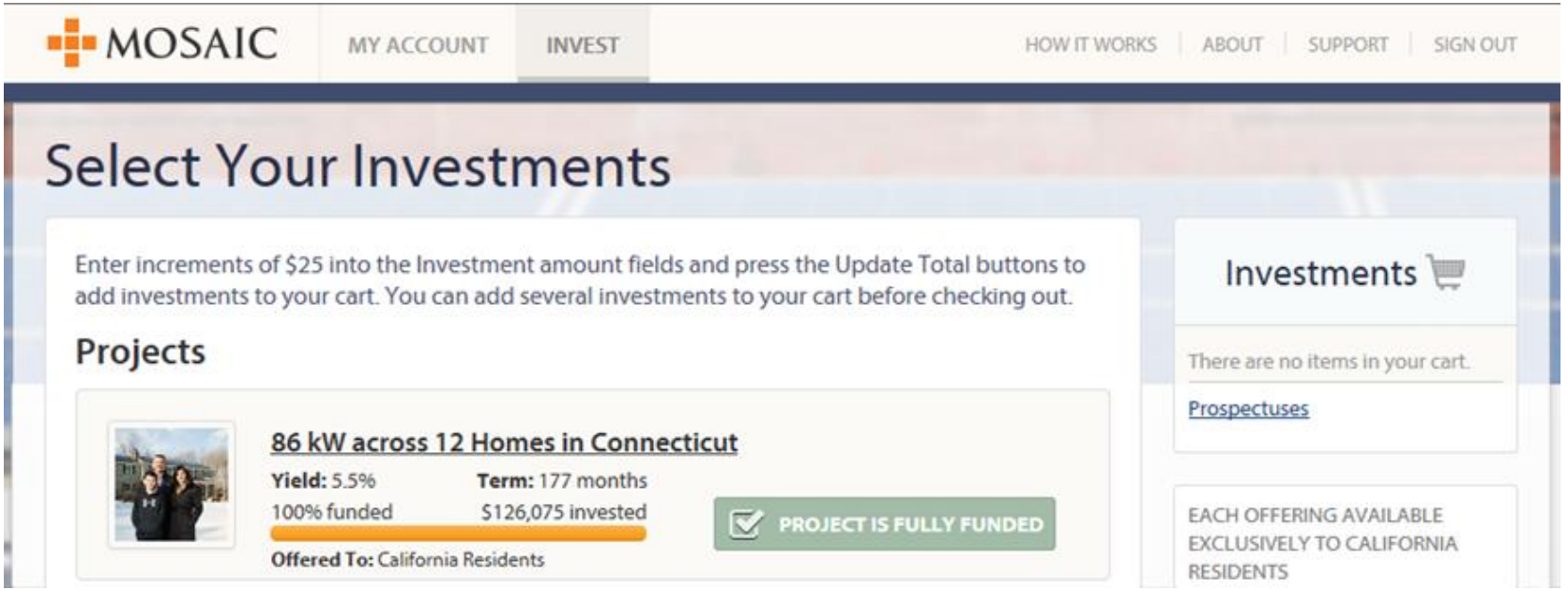
- Background
  - Board of Directors approved **$5 million** for program in July 2013
    - Sungage Financial - originator & primary servicer
      (Financial Innovation RFP - 2012)
    - Concord Servicing Corporation - sub-servicer
  - Statewide availability through 26 contractors
  - As of August 12, 2014:
    - **$4.9M approved**, representing 230 homeowners,
    - $3.25M closed
    - $1.35M funded

CT Solar Loan

Warehouse Increase & Program Changes

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Background
  - Successful pooled asset sale (Feb. 2014) to crowdfunding platform Mosaic
    - 100% of initial tranche (~$125,000) sold to its investor base
    - Preparing to move an additional $500,000 to Mosaic



CT Solar Loan

Warehouse Increase & Program Changes

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Recent Events
  - Origination partner Sungage has closed on a new debt capital line, with a federally chartered credit union, that it will begin to access in Q4 of 2014.
    - Green Bank credit enhancement for 680+ product *not required*

      First Green Bank product to "graduate" from support
    - Offering for 15 year product essentially the same
    - Expect other product offerings
    - Sungage and the Green Bank are working on transition issues
  - Staff will consider with Sungage strategic issues
    - Brand/naming issues and continued placement on EnergizeCT.com, GoSolarCT.com
    - Potential to RFP the Solar Loan product since the Sungage product is now becoming an "enhancement-free" offering
    - Step away as private lenders now effectively meeting market demand

CT Solar Loan

Warehouse Increase & Program Changes

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Market Developments
  - Market can support 20-year loans, as demonstrated by financing products currently offered by SunEdison, SunPower, and Mosaic (partnership with RGS Energy). Staff requests flexibility to extend the maturity of loans to 20 years.
  - Increasing requests to finance battery storage systems along with residential PV installations under the Program.
    - This technology pairing was never formally presented to the Board of Directors.
    - Staff now requesting the formal authority to allow Sungage (or - prospectively - any other partner operating under the auspices of the Program) to finance battery storage along with solar PV systems for qualifying homeowners
    - Standard underwriting criteria and loan caps to apply

CT Solar Loan

Warehouse Increase & Program Changes

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Request / Resolutions - Board approval to:
  - Expand Green Bank warehouse facility
    - Another $5M for revolving advances
    - Up to $1M could be held to term
    - Total maximum of $10M in revolving advances and $2M held to term
  - Endorse new programmatic features
    - Lengthening loan tenor to 20 years
    - Allowing homeowners to finance battery storage systems along with solar PV
  - Warehouse increase is consistent with FY15 Budget & Comprehensive Plan

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FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #5b

Residential Sector Programs - Solar Lease Program

August 26, 2014

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- High Level Summary
  - One year into the lease program - transaction volume is at the stage where staff has visibility for borrowing under the First Niagara loan facility ($26.7M)
  - Each borrowing is a minimum of $2.67M
  - Actual borrowings expected Dec 2014 through May 2016
  - Credit Agreement requires CTSL2 to mitigate interest rate risk by entering into interest rate swaps for at least 75% of borrowings (covert floating to fix)
  - Discussions with First Niagara capital markets team led to staff's plan to enter into swap contracts in advance of borrowings to take advantage of current low interest rate environment
  - Staff concludes risks of waiting to enter into swaps at the actual time of borrowing far exceed risks associated with entering into swaps in advance

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Background
  - Board of Directors approved CT Solar Lease 2 in June 2013
    - First leveraged & syndicated residential & commercial lease fund
    - Program Partners
      - US Bank (tax equity investor) $23.6M
      - First Niagara & syndicate partners (debt financing) - $26.7M
      - AFC First Financial - Servicer
    - Green Bank Commitment
      - $3.5M ARRA-SEP funds as a loan loss reserve
      - $2.3M subordinated debt
      - $7.2M sponsor equity
  - Statewide availability through 17 approved contractors (2 in process)

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

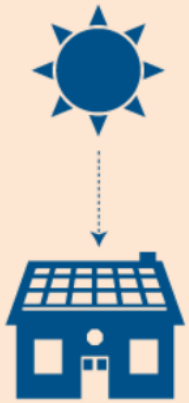
goSolarCT.com

WHY SOLAR? FINANCING OPTIONS FIND A CONTRACTOR SUCCESS STORIES FAQS ABOUT GO SOLAR CT

Get Started

Research Solar PV Systems, get contractor references, and gather multiple pricing quotes.
Ready to get started on leasing your Solar PV System? Follow these simple steps:

1. **Apply for your CT Solar Lease.**
   First get a credit approval from AFC Financial Corp. Apply online or call (888) 232-3477.
2. **Find your eligible solar contractor.**
   Your eligible contractor will provide information about the solar power system, review your planned project, and help you with the CT Solar Lease process.
3. **Install your system.**
   Work with your contractor to install your Solar PV System on your property.*



CT SOLAR LOAN SMART-E LOAN

DOWNLOAD THE GO SOLAR FINANCING FLYER HERE
DOWNLOAD THE CT SOLAR LEASE CUSTOMER PROJECT GUIDE HERE
DOWNLOAD THE CT SOLAR LEASE FOR PV FAQS HERE
DOWNLOAD THE ASSURANT SOLAR INSURANCE BROCHURE HERE

PDF

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Program Progress - Residential

Table 1. 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)[1]	44,190	15,618	3,218	63,026
Energy Saved (MMBtu)[2]	-	-	-	-
Subsidies ($'s)	-	-	-	-
Credit Enhancement ($'s)[3]	$401,843	$157,099	$27,330	$586,272
Loans or Leases ($'s)[4]	$1,044,792	$408,457	$71,058	$1,524,307
Total Green Bank Investment ($'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

- 839 applications to date
- 594 approved (71%) … 119 withdrawn … 475 "active" (3.6 MW)
- 356 in process (awaiting contract signing or contractor processing)
- 119 submitted to US Bank (900 kw)
- 34 placed in service (included in the 119)

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Program Progress - Commercial
  - 147 projects submitted to Green Bank to date
    - 26.5MW - $75.7M Project Cost
    - 52 Municipal, 6 State
    - 29 non-profit
    - 60 "for-profit"
  - 3 MW Original Capacity under SL2
  - 9 MW Request in process with US Bank / First Niagara
    - "Most Likely": 29 projects, 3.8 MW
    - "Probable": 26 projects, 5.1 MW
    - "Less Likely": 92 projects, 17.6 MW
  - ~7.8 MW Reserved for Residential (a further 4.2 MW, 560 systems)
  - Capacity through end-Q1/early-Q2 2015
  - Back Story: majority of projects being done by "in state" contractors

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Transaction Summary
  - 75% ($20M) of future obligations will be fixed now
    - 1) Rates that are fixed in the future, with seven “start dates” from Dec 14-May 16
    - 2) Surcharges for amounts not yet drawn, called a forward premium
  - 25% ($6.7M) of future obligations will be floating
    - Rates will be determined at the time of the tranche draw and monthly thereafter
  - Benefits:
    - Insulates CTSL2 from interest rate increases and clarity into borrowing costs
    - 25% floating enables prepayments, and downside protection (if rates increase more slowly)
    - CTSLII accrues savings on blended interest rate relative to the model in near term
  - Risks – opportunity cost, over- or under- hedging (more later)

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY FINANCE AND INVESTMENT AUTHORITY

- Implications for Program Funding
  - 7 borrowings from December of 2014 until May of 2016
  - Borrowings expected to total the maximum amount available under the Credit Agreement: $26,700,000
  - At least 75% of the floating rate interest rate borrowings must be exchanged for a fixed rate obligation
  - CTSL2 will enter into interest rate swaps in an aggregate face amount of approximately $20,025,000.

Tranche	Draw Date	Amount Swapped
Tranche 1	12/15/2014	$2,983,825
Tranche 2	1/15/2015	$3,480,188
Tranche 3	3/15/2015	$3,192,210
Tranche 4	7/15/2015	$2,986,900
Tranche 5	8/15/2015	$3,434,935
Tranche 6	12/15/2015	$1,800,188
Tranche 7	5/15/2016	$2,190,925

CT Solar Lease 2

Interest Rate Swap Contracts

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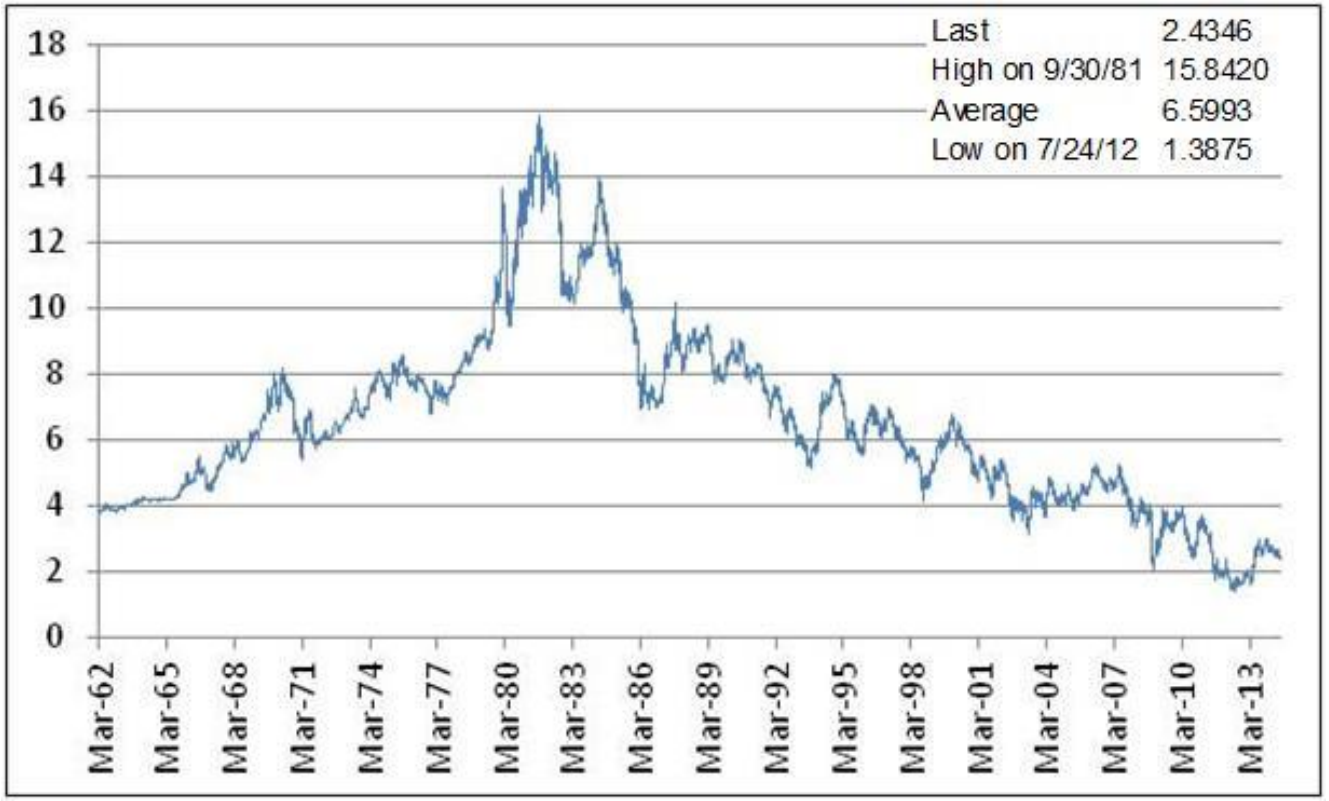
FINANCE AND INVESTMENT AUTHORITY

- Current Interest Rate Environment

Historical Perspective of 10 year Treasury (from 1962)



CT Solar Lease 2

Interest Rate Swap Contracts

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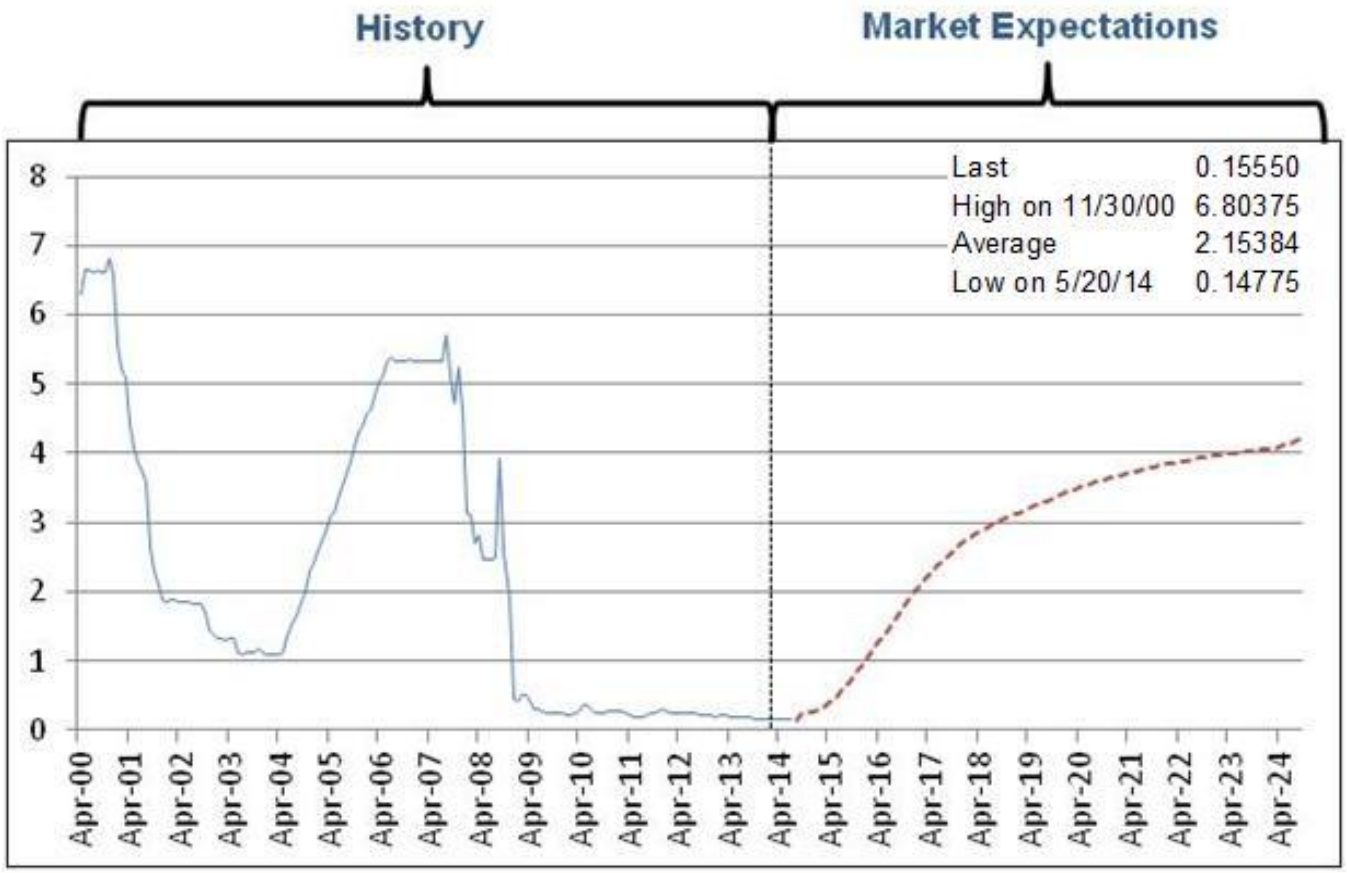
FINANCE AND INVESTMENT AUTHORITY

- Current Interest Rate Environment

Historical Perspective and Expectations of 1-month LIBOR (from 2000)



CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Interest Rate Swap Rates (subject to market conditions)

Tranche	Draw Date	Amount Swapped	Current Base Rate
Tranche 1	12/15/2014	$2,983,825	2.21%
Tranche 2	1/15/2015	$3,480,188	2.24%
Tranche 3	3/15/2015	$3,192,210	2.31%
Tranche 4	7/15/2015	$2,986,900	2.46%
Tranche 5	8/15/2015	$3,434,935	2.50%
Tranche 6	12/15/2015	$1,800,188	2.68%
Tranche 7	5/15/2016	$2,190,925	2.84%

- Average interest rate of the swaps above is 2.43%
- Credit spread under the Credit Agreement 2.50%
- Total interest cost for the entire swapped portion of 4.93%
- Compares favorably to "model rate" for CTSL2 program of 5.25%.

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Balance of Funding (~$6.7M) to remain floating rate
  - Range of final borrowed amount between $20M to $26.7M
    - Borrowings governed by DSCR
    - Commercial Projects "cash flow" not eligible / Reserves are eligible
    - Actual borrowings will be "forecast dependent"
  - Leaving a portion of the financing on a floating rate, CTSL2 is able to pre-pay part of the underlying loan without adjusting the underlying swap
    - Some homeowners and commercial users will exercise their right to purchase their systems after the 6th year of their contract
  - The precise course of interest rates is unknown - by leaving a portion of the financing on a floating rate, CTSL2 is able to benefit from the upward sloping yield curve which will build in interest rate savings that can be used to offset interest rate increases in later years

CT Solar Lease 2
Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Balance of Funding (~$6.7M) to remain floating rate (2)
  - Base interest rate today is approximately 0.16%
    - Market expectations end 2015:~1.0%
      end 2016: ~2.0%
      end 2017: ~3.0%
  - Plus the credit spread under the Credit Agreement (2.50%)
  - Total interest cost for the un-swapped portion of 2.66%.
  - The current weighted average of the swapped and un-swapped funding cost would (in today's market) be 4.36%.
  - Compares favorably to the interest rate used to model the CTSL2 program of 5.25%.
  - Floating Rate "breakeven" rate: 4% … "longer run" policy objective for the Federal Reserve is a Federal Funds Rate of ~3.75% (per FOMC projections)

CT Solar Lease 2
Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Risks**
  - **Entering into these swaps is required - issues are**
    - When?
    - What percentage? (i.e., 75%, 80% … 100%)
  - **Risks of waiting**
    - Rates have fallen from approx 3.00% from Jan 2014 to 2.40% now
    - Overwhelming view is rates will rise … a 0.6% increase on the $20M swap contracts would cost an extra $120,000 annually, $550,000 in total
  - **Risks of "over hedging" (swap value > borrowed amounts)**
    - Staff considers these risks limited
    - Solid pipeline, transactions are closing.; more a question of "when" -- not "if"
    - Possible to re-deploy "excess swap" benefit to other programs (e.g., C-PACE)
    - Even is 100% of swaps were cancelled in a falling rate environment, a 1.0% drop in rates would cost $1M to "unwind (maximum probable loss)
  - **Risks of "under hedging" (swap value < borrowed amounts)**
    - Exposure to interest rate increases
    - Staff considers these risks limited and within assumptions in the Lease Model

CT Solar Lease 2

Interest Rate Swap Contracts

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Summary
  - Staff Proceeding on a course in accordance with Credit Agreement requirements as approved by the BoD
  - Staff will enter into swap contracts on a "forward" basis (i.e. in advance of actual borrowings) to secure fixed rates that are lower than modeled and to take advantage of current rate environment for at least 75% of borrowings
  - Staff will monitor portfolio growth and anticipated borrowings to determine "course corrections" as appropriate
  - Staff will keep BoD informed on its progress

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #6

Commercial and Industrial Sector Programs

August 26, 2014

C-PACE Update

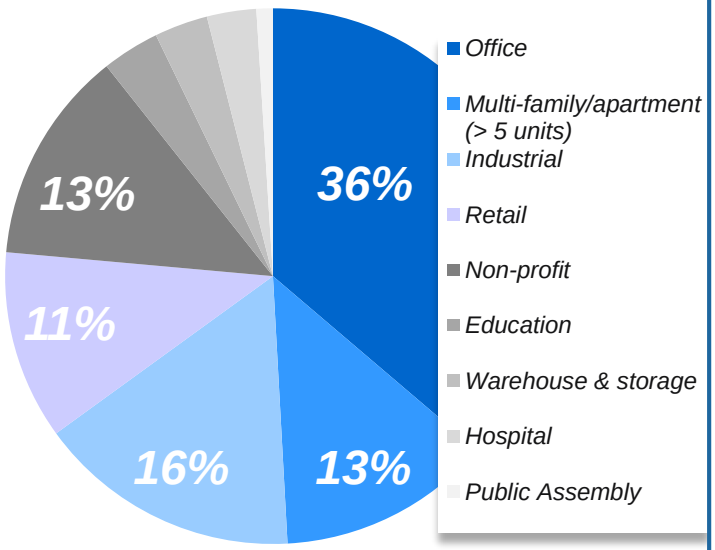
CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Closed**
  - **31 Deals**
  - **$22.82M in financing**
- **Approved**
  - **15 Deals***
  - **$12.7M in financing***

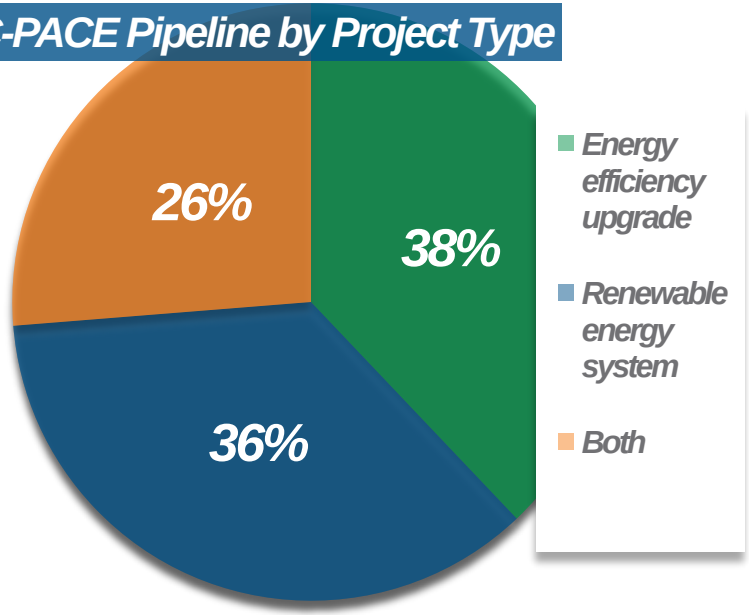
**Includes 8/24 BOD transactions*

- **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



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FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #6ai

Commercial and Industrial Sector Programs

Trumbull – C-PACE Transaction

August 26, 2014

Short-Term Loan to C-PACE Borrower

29 Trefoil Drive, Trumbull, CT

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **At its October 18, 2013 meeting**, the Connecticut Green Bank Board of Directors **approved** a construction and term **loan under the C-PACE program in the amount of $1,001,298** to ISCT Real Estate, LLC, the property owner of 29 Trefoil Drive, Trumbull, CT. The loan was for the installation of a 252 kW solar system as well as a variety of efficient lighting upgrades.
- The loan closed on November 14, 2013 and a lien was filed on December 17, 2013 with an expected repayment start date of April 1, 2014.
- Due to construction delays, the Green Bank did not make its final milestone disbursement for this project until May 2, 2014.
- Shortly thereafter, the lien was refiled with a repayment start date beginning in the next billing period for property taxes in Trumbull (July 1, 2014).
- However, the solar system was not energized until mid-June and the owner had barely accrued any energy savings by the time the first payment had become due.

Short-Term Loan to C-PACE Borrower

29 Trefoil Drive, Trumbull, CT

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- While perfectly legal and consistent with the terms of the executed Finance Agreement, **such an outcome was not in the spirit of the C-PACE program, with our goal of delivering cash flow benefits to our borrowers.**
- Normally, in a situation like this, the Green Bank would have simply extended the interest-only period on the loan for one more tax billing cycle, and refiled the lien with a new payment schedule reflecting a later repayment start date. However, in this case, shortly after we refiled the lien on this property, we sold off the first pool of C-PACE Benefit Assessment Liens to Clean Fund through a bond securitization structure facilitated by the Public Finance Authority, meaning we were no longer in a position to amend the lien ourselves.

Proposed Solution

29 Trefoil Drive, Trumbull, CT

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **On a go-forward basis,** Green Bank staff intends to **ensure that no repayment start dates occur earlier than six months after the actual completion dates of each project**. We have already implemented this approach.
- However, in this particular case, given the constraints imposed on us by the fact that we have already sold off the Benefit Assessment Lien for ISCT Real Estate, LLC and the property at 29 Trefoil Drive, **we propose extending the borrower a short-term, amortizing loan to be used toward the first payment under the benefit assessment.**

Proposed Solution

29 Trefoil Drive, Trumbull, CT

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Propose extending the borrower** (ISCT Real Estate, LLC) a short-term, amortizing **loan in the amount of $21,110.08** (equal to the amount due via Town of Trumbull property taxes on July 1, 2014).
- This proposed loan would be **paid in quarterly installments**.
- Pay interest at the **prime rate (projected to be 3.25% per annum)**
- Fully amortize by its **maturity date of July 1, 2016**.
- This loan would not be an additional mortgage on the property but would instead be an unsecured “signature loan” to the borrower.

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #6aii

Commercial and Industrial Sector Programs

Newington – C-PACE Transaction

August 26, 2014

819-835 North Mountain Rd (Newington)
Ratepayer Payback

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **$750,000** to install 150 kW roof-mounted solar PV system.
- Projected savings are **11,238MMBtus** versus **$750,000** of ratepayer funds at risk.

REDACTED

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

819-835 North Mountain Rd (Newington)
Terms and Conditions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **$750,000** construction loan at 5% and term loan set at a fixed 5.5% over the 20-year term
- **$ 750,000** loan against the property
  - Property valued at **REDACTED**
  - Loan-to-value ratio equals **REDACTED** (lien-to-value equals **REDACTED**).
- DSCR > **REDACTED**
- NOTE: Newington scheduled to vote into program September

REDACTED

Anticipated Green Bank cash flow

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

CEFIA Pro Forma

Project Basics		*Cash Flows*	
Amount Financed	$750,000	Date	CEFIA $
Construction Period (years)	0.50	Sep 2014	$750,000
Term (years)	20	Mar 2015	$18,750
		Jul 2015	$62,297
Construction Financing Rate	5.00%	Jul 2016	$62,297
Term Financing Rate	5.50%	Jul 2017	$62,297
		Jul 2018	$62,297
Construction Interest Payment (bullet)	$18,750	Jul 2019	$62,297
Yearly Debt Service Payments (made semi-annually)	$62,297	Jul 2020	$62,297
		Jul 2021	$62,297
		Jul 2022	$62,297
		Jul 2023	$62,297
		Jul 2024	$62,297
		Jul 2025	$62,297
		Jul 2026	$62,297
		Jul 2027	$62,297
		Jul 2028	$62,297
		Jul 2029	$62,297
		Jul 2030	$62,297
		Jul 2031	$62,297
		Jul 2032	$62,297
		Jul 2033	$62,297
		Jul 2034	$62,297

REDACTED

819-835 North Mountain Road, (Newington)
The Five W's

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **What?** Receive approval for a **$750,000** construction and (potentially) term loan under the C-PACE program to VKR Venture Associates 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?** VKR Venture Associates LLC, the property owner of 819-835 North Mountain Road, Newington, CT.
- **Where?** 819-835 North Mountain Road, Newington, CT.

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #6b

Commercial and Industrial Sector Programs

Extending Timeline for Certain C-PACE Transactions

August 26, 2014

Extending Timeline for Closing Certain C-PACE Transactions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- The Connecticut Green Bank Board of Directors has previously approved and authorized financing for the following **six C-PACE projects**:
  - Meriden YMCA (**approved on 12/20/2013**),
  - Quality Inn, Vernon (**approved on 12/20/2013**),
  - 255 Bank Street, Waterbury (**approved on 12/20/2013**),
  - 1095 Dayhill Road, Windsor (**approved on 12/20/2013**),
  - Brookfield YMCA (**approved on 4/25/2014**), and
  - 1200 High Ridge Road, Stamford (**approved on 4/25/2014**).
- Each financing agreement was authorized to be consistent with the terms, conditions, and memorandums submitted to the Board and made ***no later than 90 days*** from the date of Board approval.

Extending Timeline for Closing Certain C-PACE Transactions

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- Due to delays in fulfilling pre-closing requirements for these six transactions, the C-PACE program staff requests more time to close these transactions and execute the financing agreements.
- Since some of these projects were approved in December of 2013, the staff requests 360 days, from the original date of Board approval, to execute these transactions.
- **Going forward the Connecticut Green Bank staff will request 120 days (instead of 90) to close and execute C-PACE transactions**. This will allow for more time to fulfill all pre-closing requirements without requesting frequent time extensions from the Board.

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #7

Operations Matters – Personal Service Agreements

August 26, 2014

PSA Renewal

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Company	Outcomes	Selection	Best Pricing?
SRS	Technical underwriting required by law and ongoing project monitoring	Selected by competitive RFP in 2012	Performance-based pricing and continuing to drive down cost per project
Locus Energy	Real-time monitoring of solar PV systems, used for incentive payment and REC monetization	Selected by competitive RFP in 2012	Recent RFP allowed for price discovery
Clean Power Research	Provider of PowerClerk, the database and work management system used to process applications and calculate incentives for RSIP	Selected in 2006	
MatchDrive	Marketing support leading to increased customer acquisition	Selected by competitive RFP in May 2012	Recent RFP allowed for price discovery
SmartPower	Customer acquisition through community-based marketing and outreach campaigns	Strategic selection in 2012 and competitive RFQ in 2013	Performance-based pricing and continuing to drive down cost per customer acquisition

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Board of Directors of the Connecticut Green Bank

Agenda Item #8

Adjourn

August 26, 2014

Subject to changes and deletions

CONNECTICUT GREEN BANK
Board of Directors

Draft Minutes – Special Meeting
Wednesday, June 25, 2014

A special meeting of the Board of Directors of the **Connecticut Green Bank (the "Green Bank")** was held on June 25, 2014 at the office of the Clean Energy Finance and Investment Authority, 845 Brook Street, Rocky Hill, CT, in the Colonel Albert Pope conference room.

1. Call to Order: Bryan Garcia, President and CEO of CEFIA, called the meeting to order at 2:05 p.m. Board members participating: Norma Glover (by phone), Mun Choi (by phone), Patricia Wrice (by phone), and Reed Hundt (by phone).

Members Absent: Catherine Smith, Tom Flynn, John Harrity, Matt Ranelli, Rob Klee and Bettina Ferguson.

Staff Attending: George Bellas, Mackey Dykes, Brian Farnen, Bryan Garcia, David Goldberg, Dale Hedman (by phone), Bert Hunter (by phone), Kerry O'Neill (by phone), and Cheryl Samuels.

Others Attending: none

2. Public Comments

There were no public comments.

3. Update on Residential Solar Incentive Program

Mr. Garcia stated that the reason for the optional special meeting is to update the board on the Residential Solar Incentive Program and recent changes in the law around net metering. Staff is evaluating several options that they would like to present to the board and get their feedback. Mr. Garcia explained that a law was passed on June 6th: PA 14-134 "An Act Concerning Technical and Minor Revisions to and Repeal of Obsolete Provisions of Energy and Technology Statutes" which modifies Section 106(b) of PA 11-80 changing 16-243b to 16-243h which staff believes should have been 16-244r or ZREC. Customers who receive expected performance-based buydowns under this section shall not be eligible for a credit pursuant to section [16-243b] 16-243h of the general statutes. Section 16-243b of the general statutes refers to residential net metering which CEFIA staff believes it should have been 16-244r or ZREC. Revisions signed into law on June 6, 2014 are not retroactive – they are applied prospectively.

The change was discovered on June 10, 2014. The impact of the problem is if a homeowner takes a prospective buydown, going forward there is no net metering for that homeowner. There is significant lost value to the homeowner without net metering. Since identifying the problem, application approval has been suspended until a fix is made but not the receipt of applications requesting an expected performance based buydown (EPBB.) Solar Installers were informed of the problem on June 20, 2014. The solar industry also had no idea of this change. A request was made to the solar installers to continue to submit applications requesting EPBB incentives. It was noted that there will be a webinar scheduled to take place on June 26, 2014 with the solar installers to discuss the problem and CEFIA's position.

CEFIA has talked to the Governor's Office and key legislative leaders and they realized the reference to net metering was a mistake and are supportive of CEFIA remedies to the problem until next legislative session. CEFIA are keeping them apprised of the issue.

Some of the possible solutions that CEFIA explored include call thing this a "Scrivener's error" requesting a change to a clerical error. That was exhaustively pursued and did not work. The second is still in process and that is to ask the utilities to continue to honor the EPBB net metering commitment until the policy is fixed. A meeting with the utilities was organized and will take place on June 25, 2014 at the offices of DEEP; 10 Franklin Square, New Britain, CT. A question was asked if the utilities will be asked to pay for future installs of net metering. A discussion ensued. Mr. Garcia stated that CEFIA was advocating for the homeowners and identifying opportunities that would allow them to continue to net meter. There are a couple of other options that CEFIA is considering. One is to create a homeownership performance based incentive that has an economically comparable value similar to the EPBB, but functions as a performance based incentive.

Mr. Garcia mentioned that CEFIA can modify the program as a result of the legislative change and explained that nothing in the subsection shall restrict the authority from modifying the approved incentive schedule before the issuance of its next comprehensive plan to account for changes in the federal or state law or regulation or developments in the solar market when such changes would affect the expected return on investment for a typical residential solar photovoltaic system by twenty percent or more. With the approval of the board of directors, CEFIA can fix this quickly by allowing the equivalent value of the EPBB incentive to function as a homeownership performance based incentive. Mr. Garcia stated that CEFIA have the statutory flexibility to propose a change and will with the approval of the board of directors.

Mr. Farnen mentioned that option number one should be to do a one month performance based incentive and then a prompt payout of the performance incentive. The solar PV installers will get their incentive later after compliance

with the performance metrics is confirmed instead of the present practice of a payment at equipment delivery to the home and the balance following completion of installation and inspection. The second approach would be to do a PBI performance test over a one-year period but would create some risk to CEFIA and create more paperwork. The third is a six year performance model. The one year and six year could be adjusted.

A question was asked if all of the proposed options make the homeowner whole and the answer was "yes". Under the proposed incentives as a performance based incentive the utilities would have to provide net metering for homeowners. Mr. Hunter expressed some concern with the first option versus the other two options. Mr. Hundt complimented staff on their behavior for trying to protect the homeowner. Mr. Hundt recommends going to the utilities with all options to fix the net metering problem and hopes that what CEFIA will come up with is further removed from offering grants. Mr. Garcia reiterated that CEFIA is trying to get the net metering problem fixed. Mr. Hedman mentioned that the PBI was a mechanism born in California and explained how that came about. Mr. Hedman stated that he feels more comfortable with a one year PBI. Mr. Garcia explained that staff is trying to look through all of the administrative options for the homeowner. Ms. Glover added that we need to be very careful and protect the installers as well. Mr. Garcia stated that CEFIA will figure it out and will come back in a week with a recommendation with little impact to the homeowner and contractors.

Ms. Wrice stated that she trusts CEFIA staff judgment and feels comfortable with the options that CEFIA proposes. Mr. Garcia said that he is confident that CEFIA will be in a good position to discuss this issue with the installers at the webinar. Mr. Garcia told the members that materials will be sent out to the board next week for their review. Mr. Choi stated that he looks forward to hearing the recommendations next week and feels CEFIA have a great plan to move forward.

4. **Adjournment**: Upon a motion made by Ms. Glover, seconded by Mr. Choi, the Board members voted unanimously in favor of adjourning the June 25, 2014 meeting at 2:47 p.m.

Respectfully submitted,

Catherine Smith, Chairperson

Subject to changes and deletions

CONNECTICUT GREEN BANK
Board of Directors
Draft Minutes – Special Meeting
Thursday, July 3, 2014

A special meeting of the Board of Directors of the **Connecticut Green Bank (the "Green Bank")** was held on July 3, 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 Green Bank, called the meeting to order at 10:02 a.m. Board members participating: Bettina Ferguson, State Treasurer's Office; Norma Glover; John Harrity; Rob Klee, Vice Chairperson of the Green Bank and Commissioner of the Department of Energy and Environmental Protection ("DEEP"); Matthew Ranelli; Tom Flynn; Catherine Smith, Chairperson of the Green Bank and Commissioner of the Department of Economic and Community Development ("DECD"). All members participated by phone.

Members absent: Mun Choi, Reed Hundt, and Patricia Wrice.

Staff Attending: Bryan Garcia, Bert Hunter, Brian Farnen, Dale Hedman, George Bellas, Mackey Dykes (by phone), Edward Kranich, Joe Buonannata, Andrea Janecko and Cheryl Samuels.

Others Attending: Mike Trahan, Executive Director of Solar Connecticut; Matt Stone (Pullman & Comley – by phone), Katie Dykes (DEEP – by phone)

2. Public Comments

Mike Trahan (Executive Director of Solar Connecticut) stated that the business community is appreciative of the openness and honesty that the Green Bank has demonstrated and is thankful for involving the installer community in the process of finding a solution that reduces the time and money losses inflicted on installers. He continued that at the beginning of this process, there were members within the association that felt seeking legislative and media support would bring a faster resolution but after much discussion, due to the trust and relationships built with the Green Bank, his association's board decided to allow the Green Bank the opportunity to propose a solution that works for the industry. On behalf on the industry and the Solar Connecticut board, he expressed appreciation to the Green Bank.

3. Residential Solar Investment Program: Recommendation for a Homeowner Performance Based Incentive

Mr. Garcia provided the Board with a summary of the legislative change and its impact on the solar community:

The Green Bank discovered an inadvertent error in a technical fix to energy statutes that occurred at the end of the legislative session that effectively disallows net metering for households that receive an Expected Performance Based Buy-down (EPBB) incentive. As net Metering is an important economic component for homeowners and the Connecticut solar industry, this inadvertent error could have a significant adverse impact on the economics of solar photovoltaic (PV) systems, eliminating the possibilities of system payback for households that install such systems and resultantly distorting costs by 20 to 30 percent. As a result of this finding, beginning June 10, 2014, any application submitted to the Green Bank that requested an EPBB was put on hold until the problem is resolved.

He added that since the launch of the RSIP in March of 2012, the Green Bank has worked closely with the solar PV industry and private investors to build a sustainable market that is projected to be a $100 Million market in 2014. Installed costs have declined by more than 50% from a high in 2007, consumer demand has doubled each of the past two years and is on pace to double for a third year in a row, and incentives have decreased by nearly 75% from a high in 2005. It is because of the importance of the development of this market that the Green Bank brings forth a solution to this advertent error.

Mr. Garcia explained that the Green Bank is proposing the establishment of a Homeowner Performance Based Incentive (HOPBI) – a performance based incentive that would allow homeowners access to incentives from the Green Bank and receive net metering. Incentives would however be performance-based, instead of an upfront rebate. The HOPBI as proposed would be economically comparable to the EPBB and the PBI so that the impact on the consumer is neutral and includes an added option that provides working capital for installers. Green Bank staff have vetted this and other options with the industry, including Solar Connecticut and other local installers, the utilities, DEEP, and other stakeholders, and believe strongly that this course of action will rectify the problem until a legislative fix can be implemented next year.

Mr. Farnen added that based on feedback received internally and from stakeholders, the HOPBI option was decided as the consensus choice. Mr. Farnen explained that in order to receive a HOPBI, the installed system must meet a target level of performance set at the 30-day production estimate from the system's in-service date. The HOPBI would be implemented in four steps: 1) The homeowner purchases a system; 2) The Green Brank approves the application submitted by the contractor; 3) The homeowner pays for the system net of the HOPBI; 4) The Green Bank pays the HOPBI to the contractor when system production is verified, in what is expected to be 30 days.

Mr. Hedman stated that as a result of the feedback received on the 30-day HOPBI, a working capital recourse loan facility has been added for contractors that need to more closely manage their cash flow. The 30-day HOPBI with recourse loan facility is a 6-part process, including the following:1) Homeowner contracts with the contractor to purchase a system net of the HOPBI and homeowner agrees to assign the HOPBI to the contractor when they are eligible to be paid (i.e. 30-day performance target is achieved); 2) the Green Bank approves homeowner's application for the HOPBI and sets a 30-day performance target; 3) Contractor is approved for a loan in the amount of 100% of the HOPBI to be disbursed at equipment delivery; 4) Homeowner pays for the system net of the HOPBI on the contractor's terms; 5) the Green Bank pays the HOPBI to the contractor on behalf of the homeowner once the performance is verified; and 6) Contractor pays off (i.e., cash) the Green Bank loan within 5 business days of receiving the HOPBI payment.

Mr. Klee requested additional detail on the performance metrics of the HOPBI to which Mr. Hedman explained that the calculation would be based on the per kWh target established for any given month. In order to receive the one time HOPBI incentive, the system must meet the performance metric. Mr. Farnen expressed that the key item is the measurable performance component - if the target is not met within 30 days, an extension would be granted, however, the Green Bank feels that requiring real time monitoring meters on all solar PV system installations provides additional justification to collect 30 days of real data.

Ms. Smith commended the Green Bank staff for their expeditious response and elegant market solution.

Upon a motion made by Ms. Glover, seconded by Mr. Ranelli, the Board members voted unanimously in favor of adopting the proposed Homeowner Performance Based Incentive (HOPBI) RSIP resolution.

Resolution #1

WHEREAS, Section 106 of Public Act 11-80 "An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future" (the "Act") requires the Connecticut Green Bank ("Green Bank") to design and implement a Residential Solar Photovoltaic ("PV") Investment Program ("RSIP") that results in a minimum of thirty (30) megawatts of new residential PV installation in Connecticut before December 31, 2022;

WHEREAS, pursuant to Section 106 of the Act, the Green Bank has prepared a program plan and a declining incentive block schedule ("Schedule") that offer direct financial incentives in the form of Performance-Based Incentives ("PBI") (traditionally used for the lease and third party ownership model) and Expected Performance-Based Buy-down incentives ("EPBB") (rebate model traditionally used for the purchase of a PV system);

WHEREAS, on June 6, 2014, Public Act 14-134 "An Act Concerning Technical and Minor Revisions to and Repeal of Obsolete Provisions of Energy and Technology Statutes," was signed into law that has an adverse impact on the RSIP by not permitting households to net meter if they received an EPBB through the RSIP;

WHEREAS, outside legal counsel has provided a legal memorandum stating that the 2014 technical change impacts RSIP projects approved by the Green Bank after the effective date of Public Act 14-134, or June 6, 2014, but does not affect past contracts or contracts currently in effect;

WHEREAS, the residential solar PV market is on pace to be a $100 million market and a state-based solar industry that provides over 1,500 jobs, of which nearly 600 are direct jobs by the end of 2014;

WHEREAS, the Green Bank may modify the Schedule before the issuance of its next comprehensive plan to account for the prohibition on net metering because the expected return on investment for a typical residential solar PV system that receives an EPBB incentive will be affected by twenty per cent or more;

WHEREAS, the Green Bank has reached out to stakeholders on the problem to solicit workable solutions; and

WHEREAS, the Green Bank staff recommends the creation of a Homeowner Performance Based Incentive ("HOPBI") as a second PBI with an optional recourse loan facility as described in the memorandum to the Board of Directors dated July 2, 2014.

Therefore:

RESOLVED, that the Board of Directors hereby approves the staff recommendation to establish a HOPBI as a second PBI for the purchase of residential Solar PV systems and as more specifically described in the memorandum to the Board of Directors dated July 2, 2014;

RESOLVED, that the Board of Directors hereby approves the staff recommendation to establish an optional recourse loan facility to support eligible Solar PV contractors that need working capital for RSIP projects that receive the HOPBI and as more specifically described in the memorandum to the Board of Directors dated July 2, 2014;

RESOLVED, that the RSIP projects approved by the Green Bank with an EPBB after June 6, 2014 are to be provided the HOPBI;

RESOLVED, that this Board of Director action is consistent with Section 106 of the Act; and

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

a. RSIP Step 4

Discussion ensued regarding the timeline of the HOPBI and the transition to step 5 of the RSIP. Mr. Garcia expressed that while staff has been diligently working towards a proposed solution, the RSIP project pipeline has continued to build. Staff is resultantly experiencing time constraints surrounding the design and implementation of step 5 of the RSIP.

In an effort to allow the solar industry more time to catch-up on their pipeline following this delay, and to give Green Bank staff more time to prepare for a rollout of step 5, Mr. Garcia and Ms. Smith proposed the addition of one additional megawatt be authorized to support step 4 of the RSIP.

> **Upon a motion made by Ms. Glover, seconded by Ms. Ferguson, the Board members voted unanimously in favor of authorizing one additional megawatt to step 4 of the Residential Solar Investment Program with the caveat that said increase would apply to HOPBI projects only.**

10. **Adjournment:** Upon a motion made by Mr. Ranelli, seconded by Ms. Ferguson, the Board voted unanimously in favor of adjourning the July 3, 2014 meeting at 10:44 a.m.

Respectfully Submitted,

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Catherine Smith, Chairperson

Subject to changes and deletions

CONNECTICUT GREEN BANK
Board of Directors
Draft Minutes – Regular Meeting
Friday, July 18, 2014

A regular meeting of the Board of Directors of the **Connecticut Green Bank (the "Green Bank")** was held on July 18, 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 9:01 a.m. Board members participating: Mun Choi; 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"); Patricia Wrice.

Members absent: Tom Flynn.

Staff Attending: Jessica Bailey, George Bellas, Andy Brydges, Joe Buonannata, John D'Agostino, Mackey Dykes, Brian Farnen, Bryan Garcia, Ben Healey (by phone), Dale Hedman, Eitan Hochster, Bert Hunter (by phone), Suzanne Kaswan, Nick Kline, Alexandra Lieberman, Kerry O'Neill, Gabe Rissman, Cheryl Samuels, Genevieve Sherman.

Others Attending: Peter Lent, DECD; Pauline Murphy, Connecticut Innovations.

2. Public Comments

There were no public comments.

3. Approval of Minutes for June 20, 2014 Meeting

Ms. Smith asked the Board to consider the minutes from the June 20, 2014 meeting.

Upon a motion made by Mr. Ranelli, seconded by Mr. Harrity, the Board members voted unanimously in favor of adopting the minutes from the June 20, 2014 meeting as written.

4. Update from the President

Mr. Garcia provided the Board of the Directors with an overview of the changes made to the Connecticut Green Bank's Comprehensive Plan based on feedback received from the Board at their previous meeting and in conversations thereafter.

Mr. Hundt asked Mr. Garcia to provide insight on how many of the Green Bank's programs are resulting in either even or net positive revenue. Mr. Garcia responded that a key metric for the Green Bank is monitoring the distribution of funds between grants and rebates, loans and leases, and credit enhancements. He added that, historically, 80% of the Green Bank's predecessor's resources were dedicated to grants and rebates, while today, that number has dropped to 50% with an increasing percentage of loans and leases.

Mr. Hundt and Mr. Hunter discussed the revenues for some of the Green Bank's programs. Mr. Ranelli added that while it is a laudable goal to have programs result in an even level of revenue, the mission of the Green Bank should be to accelerate private investment, not simply facilitate it.

Ms. Smith agreed that the topic of program revenue raised by Mr. Hundt was important, but noted that there are some instances where subsidies may still be necessary. She asked staff to present figures at the next meeting that will help the Board understand the trajectory of how public dollars are being used through each of the Green Bank's programs.

Mr. Garcia continued his update, thanking the Board and staff for their work on finding a solution to the Residential Solar Investment Program ("RSIP") – Expected Performance Based Buydown ("EPBB") issue with the development of the Homeowner Performance Based Incentive ("HOPBI"). He added that the Green Bank is now focused on the RSIP's future after achieving its goal of deploying 30 megawatts of solar seven years ahead of schedule and how to communicate that news out to the market. Mr. Klee suggested an event to commemorate this achievement and Mr. Dykes noted that the Green Bank would be in touch with the Governor's Office to potentially sponsor a joint event. Mr. Garcia also mentioned that a special meeting of the Board would likely be scheduled prior to the October meeting sometime in August to discuss Step 5 of the RSIP.

Mr. Garcia presented to the Board two articles written and published by Greentech Media focused on the Green Bank and the C-PACE sell-down.

Mr. Garcia then introduced to the Board the three Finance team summer interns, the Legal summer associate, the Residential summer intern, and the Outreach summer intern.

5. Committee Updates and Recommendations

a. Deployment Committee and Audit, Compliance and Governance Committee Recommendation

Ms. Glover announced that she was recently reappointed to the Board of Directors of the Connecticut Green Bank for another four year term.

Attorney Farnen updated the Board on the status of ClearEdge, stating that the Green Bank recently contacted all past recipients of fuel cells from the now bankrupt company to ensure their awareness of deadlines and processes they would have to follow regarding their equipment. He added that the Green Bank wanted to make sure that everyone knew there were opportunities to protect their rights.

Attorney Farnen discussed the request for Board approval to raise the aggregate amount of transactions under $300,000 that the Green Bank staff could approve from its current cap of $500,000. He noted that some hesitation remained regarding raising the aggregate approval limit so as to not step out of line with similar policies of other quasi-public agencies in the state.

Attorney Farnen proposed that the $500,000 limit be maintained, but added that once the limit is reached, staff would inform the Deployment Committee of this occurrence and seek their approval to move forward with the transactions and reset the approved amount back to zero. Ms. Glover asked how the auditors would feel about this proposal, to which Mr. Bellas replied that they would likely support it if it had Board approval, but that they had not been asked directly. Mr. Ranelli added that the Green Bank staff would need to add a note to each of their communications to the Deployment Committee members to remind them of this new process.

Ms. Bailey noted that one reason behind the C-PACE program's success has been the Green Bank's ability to act quickly on transactions. A discussion ensued regarding potentially increasing the aggregate limit beyond $500,000. Ms. Wrice indicated that she was comfortable with raising the limit to $1 million. Mr. Klee asked whether $1 million was the best number or if it should be higher or lower. Mr. Choi asked Ms. Bailey what she felt was an appropriate limit based on current deal flow, to which she responded that $1 million would be best, though staff would come back to the Board if the number should increase.

Mr. Hedman noted that the Board should not consider this limit as related only to approval of C-PACE projects, but also to the internal approval of Anaerobic Digestion and Combined Heat and Power projects as well.

Upon a motion made by Ms. Wrice, seconded by Mr. Harrity, the Board members voted unanimously in favor of adopting the following resolution regarding the authorization of Green Bank staff to evaluate and approve program funding requests less than $300,000 in an aggregate amount not to exceed $1,000,000.

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 Connecticut Green Bank Board of Directors hereby approves 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 Connecticut Green Bank Comprehensive Plan, approved within the Green Bank's fiscal budget and in an aggregate amount not to exceed $1,000,000 from the date of the last Deployment Committee meeting; and

RESOLVED, that the Green Bank staff are instructed to report out to members of the Deployment Committee once an aggregate amount of $500,000 in funding requests has been approved at the staff level.

Mr. Klee and Mr. Dykes provided the Board with an overview of proposed revisions to salary ranges for Green Bank staff at the Director I level and above. Mr. Dykes stated that several new position levels had been added to the organization career chart, setting a career path – particularly for junior staff. Mr. Klee added that the Budget and Operations Committee wanted to ensure that the Green Bank continues to attract and retain top talent.

Ms. Ferguson asked Mr. Dykes about the frequency at which the salary ranges would be adjusted, to which he responded that the Green Bank would monitor the market and attempt to stay in line with the State's cost-of-living adjustments. Mr. Dykes noted that he would share the results of the study commissioned from Buck Associates to compare Green Bank salaries to private and non-profit/government entities' salaries. Ms. Kaswan added that the Green Bank and Connecticut Innovations had recently purchased an automated Human Resources system from Silkroad that can help systemize this process within the next year and give tangible data on topics like succession planning.

Upon a motion made by Mr. Klee, seconded by Ms. Ferguson, the Board members voted unanimously in favor of adopting the

following resolution regarding the approval of salary ranges for Director I level positions and above.

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

Mr. Ranelli and Mr. Bellas provided the Board with an overview of the findings of the audit of CT Solar Lease 2 LLC done by CohnReznick. Mr. Bellas welcomed any questions from the Board on the audit. Ms. Smith asked if the auditors had any comments of note, to which Mr. Ranelli responded that the auditors found no issues.

Upon a motion made by Ms. Glover, seconded by Mr. Klee, the Board members voted unanimously in favor of adopting the following resolution regarding the approval of 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.

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.

Attorney Farnen introduced the intention to request the authority to edit the Bylaws of the Connecticut Green Bank at the next Board meeting to note the name change and

highlight the Green Bank's participation in a Joint Committee with the Energy Conservation Management Board of the Connecticut Energy Efficiency Fund.

Mr. Garcia discussed the request to amend the Green Bank's Operating Procedures to provide the President with the authority to establish and modify certain employee policies involving workplace flexibility (e.g., flex time, telecommuting, etc.) that do not in aggregate have an adverse financial impact on the agency. He also wished to clarify the Request for Proposals approval process and change the name from "CEFIA" to the "Connecticut Green Bank" throughout the Operating Procedures and Bylaws.

Upon a motion made by Mr. Choi, seconded by Mr. Harrity, the Board members voted unanimously in favor of adopting the following resolution regarding the approval of the revised Operating Procedures contingent on receiving no adverse public comment on or before July 31, 2014.

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.

Mr. Garcia described to the Board a request made by the Energy Efficiency Board ("EEB") for Green Bank assistance in five key areas: (1) commercial and industrial market gaps, (2) SBEA cost of capital, (3) C-PACE), (4) single family products, and (5) multifamily products. He explained that he and Ms. Glover drafted a response from the Board of Directors to the EEB detailing how the Green Bank will assist them. He noted that if the Board of Directors had any comments on the response, then they are to get him comments. In lieu of those comments, he and Norma Glover would send a response on behalf of the Board of Directors.

7. Commercial and Industrial Sector Program Recommendations

a. C-PACE Transactions

Ms. Bailey provided an overview of the six C-PACE transactions being presented to the Board for approval. She noted that the six transactions are all solar and efficiency deals, some with Connecticut-based contractors, are all structured in a manner familiar to the Board of Directors, and that due to their size, require Board approval.

380 Horace Street, Bridgeport

Ms. Bailey discussed the request for C-PACE financing to fund the $1,811,461 installation of a 600-kilowatt solar photovoltaic system, LED lighting upgrades, wood gasifier, and biodiesel backup generator. She explained that the construction loan would be at 5% and the term loan set at a fixed 6% over the 20-year term.

800 Connecticut Boulevard, East Hartford

Ms. Bailey discussed the request for C-PACE financing to fund the $2,353,541 installation of a 446-kilowatt solar PV system, lighting, HVAC, and building management system upgrades. She explained that the construction loan would be at 5% and the term loan set at a fixed 6% over the 20-year term.

Ms. Bailey noted that the financial underwriting for this transaction was completed without considering the receipt of a ZREC, which was awarded one day prior to the Board meeting.

290 Pratt Street – Phase II, Meriden

Ms. Bailey discussed the request for $927,095 in C-PACE financing to fund the installation of a 215-kilowatt solar photovoltaic system, asbestos remediation and roof repair. She explained that the construction loan is set at 5% and term loan is at 6% over a 20-year term.

Ms. Bailey noted that the Deployment Committee previously approved a $1,925,847 loan for energy efficiency measures (Phase I) for the property owner.

Modern Woodcrafts, Plainville

Ms. Bailey discussed the request for $1,225,492 in C-PACE financing to fund the installation of a 324-kilowatt solar photovoltaic system, LED lighting and HVAC management system. She explained that the construction loan is set at 5% and the term loan is at a fixed 5.9% over a 19-year term.

Ms. Bailey noted that the financial underwriting for this transaction was completed without considering the receipt of a small ZREC, which was awarded one day prior to the Board meeting.

40 Scitico Road, Somers

Ms. Bailey discussed the request for $957,000 in C-PACE financing to fund the installation of a 250-kilowatt solar photovoltaic system. She explained that the construction loan is set at 5% and the term loan is at a fixed 5.5% over a 20-year term.

360 Bloomfield Avenue, Windsor

Ms. Bailey discussed the request for $636,637 in C-PACE financing to fund the installation of lighting, HVAC, variable frequency drives, and building management systems. She explained that the construction loan is set at 5% and the term loan is at a fixed 5.4% over a 14-year term.

> **Upon a motion made by Mr. Ranelli, seconded by Ms. Glover, the Board members voted unanimously in favor of adopting the following resolutions regarding the C-PACE transactions for 1) 380 Horace Street, Bridgeport, 2) 800 Connecticut Boulevard, East Hartford, 3) 290 Pratt Street – Phase II, Meriden, 4) Modern Woodcrafts, Plainville, 5) 40 Scitico Road, Somers, and 6) 360 Bloomfield Avenue, Windsor.**

380 Horace Street, Bridgeport

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.

800 Connecticut Boulevard, East Hartford

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 11th, 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 18th, 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.

290 Pratt Street – Phase II, Meriden

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.

Modern Woodcrafts, Plainville

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.

40 Scitico Road, Somers

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 11th, 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 18th, 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.

360 Bloomfield Avenue, Windsor

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 $636,367construction and term 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

Ms. Lieberman presented to the Board a status update on a proposed, approximately $6 million C-PACE transaction to fund the installation of an 800-kilowatt fuel cell project at Amgraph Packaging. She explained that this transaction was pulled from the April 25, 2014 Board meeting because the originally selected fuel cell manufacturer for the transaction, ClearEdge Power, declared bankruptcy. Ms. Lieberman stated that Amgraph Packaging is now in discussions with both Bloom and Fuel Cell Energy to provide the fuel cell for the project and that when a manufacturer is identified, a special Board meeting will be requested to approve the transaction.

c. Clean Energy Business Solutions Transaction – Cartus

Ms. Smith and Mr. Dykes introduced Mr. Lent of the DECD to discuss the request for $1 million in Clean Energy Business Solutions funding as part of a retention package that

will keep Cartus, a global leader in global mobility and workforce development, headquartered in Danbury – retaining 1,275 jobs and creating an additional 200 over the next 5 years. Mr. Lent explained that the funding will be used for energy efficiency improvements as part of an overall $15.4 million renovation of their facility.

Ms. Smith noted that the discussions with Cartus began prior to the development of the C-PACE program, but that in the past, the Green Bank had given out two similar grants under the Clean Energy Business Solutions program. She explained that this project is a partnership between the DECD, Connecticut Innovations and the Green Bank, and that the Green Bank's funding is the last piece needed to complete the funding for the improvements.

Ms. Smith and Mr. Dykes confirmed that even if Cartus left Connecticut, the Green Bank's funds would still result in the building being energy efficient for its next occupant. Mr. Ranelli asked about the payment schedule associated with the requested funds and Mr. Dykes explained that the first 50% of the funds would be disbursed at equipment delivery or purchase and the second 50% at project completion.

Upon a motion made by Mr. Ranelli, seconded by Ms. Ferguson, seconded by Ms. Ferguson, the Board members voted unanimously in favor of adopting the following resolution regarding the Clean Energy Business Solutions transaction as written.

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 Recommendation

a. Bridgeport District Heating and Cooling Project

Mr. Hunter and Ms. Lieberman discussed the request for a $338,000 strategic development loan to NuPower Thermal, LLC as an incremental investment following positive results from an initial feasibility study loan (awarded by the Green Bank in

2012) for a district energy facility being developed for the City of Bridgeport, the University of Bridgeport and other commercial and non-for-profit stakeholders; and, to support efforts suggested by the Comprehensive Energy Strategy to promote more effective utilization of waste-to-energy facilities.

Ms. Smith stated that this looks like a promising opportunity, but it is important that the risks associated with it are highlighted. Mr. Hunter explained that if the project does not succeed, it is unlikely that the Green Bank will be repaid the $427,000 it lent to NuPower Thermal, LLC ($89,000 in feasibility study loan from 2012 and $338,000 strategic development loan being requested), but that in the event the project moves to construction and term financing, the Green Bank will be repaid for both loans.

Mr. Ranelli noted that he will abstain from a vote on this project because of his employer's association in this project.

Upon a motion made by Ms. Glover, seconded by Mr. Harrity, the Board members voted in favor of adopting the following resolution regarding the Bridgeport District Heating and Cooling Project. Mr. Ranelli abstained from voting.

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.

9. Other Business

Mr. Garcia requested that the Board go into Executive Session to discuss personnel matters. Upon a motion made by Ms. Glover, seconded by Mr. Choi, the Board went into Executive Session at 11:09 a.m.

At 11:13 a.m., the Board resumed regular session.

Upon a motion made by Mr. Choi, seconded by Mr. Klee, the Board voted unanimously in favor of approving the position description for the Vice President and Chief Operating Officer (VP and COO).

Upon a motion made by Mr. Choi, seconded by Mr. Ranelli, the Board voted unanimously in favor of appointing Mr. Dykes as an officer of the Green Bank for the position of Chief Operating Officer.

RESOLVED, that the Board of Directors of the Connecticut Green Bank (the Green Bank) pursuant to Article III of the Green Bank Bylaws, approve of the position description for the Vice President and Chief Operating Office (VP and COO) including Chief of Staff in the Career Series and authorizes the appointment of Mackey Dykes as an officer of the Green Bank for the position of Chief Operating Officer.

10. Adjournment: Upon a motion made by Mr. Choi, seconded by Ms. Ferguson, the Board voted unanimously in favor of adjourning the July 18, 2014 meeting at 11:15 a.m.

Respectfully Submitted,

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Catherine Smith, Chairperson

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Residential Solar Investment Program

A Statutory Program

Due Diligence Package

August 20, 2014 - Revised

Document Purpose: This document contains background information and due diligence on the Residential Solar Investment Program and the organizations involved. This information is provided to the Board of Directors for the purposes of reviewing and approving recommendations made by the staff of the Connecticut Green Bank.

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

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Program Qualification Memo

To: Deployment Committee

From: Dale Hedman (Director of Statutory and Infrastructure Programs) and Bryan Garcia (President and CEO)

Date: August 13, 2014

Re: Residential Solar Investment Program –Step 5

Summary

The staff proposes the following incentive levels for Step 5 of the Residential Solar Investment Program:

1. **Race to the Solar Rooftop** –The total capacity target for Step 5 is 10.0 MW – by June 30, 2015, whichever comes sooner.

2. **Incentive Level** – we propose about a 25% reduction of the Step 4 incentive levels to $0.65/W for systems up to 10 kW for the Homeowner Performance Based Incentive (HOPBI) and $100/MWh for the Performance Based Incentive (PBI) in Step 5 – both ZREC price equivalents of $50 or 10% below the ACP for the Class I RPS in Connecticut. For the first time in the RSIP, in order to encourage larger systems to reduce future peak load, for systems over 10 kW, the Green Bank will purchase RECs at a ZREC price equivalent of $25 – or half of the value of the HOPBI (i.e., $0.30/W) and PBI (i.e., $50/MWh). Per Section 106 of PA 11-80, the Green Bank staff will seek DEEP's approval of the schedule of incentives for Step 5.

3. **REC Value** – as the Green Bank now has a process in place for tracking, registering, and selling renewable energy credits (RECs) as a result of projects receiving incentives through the RSIP, revenues are being generated over time that offset the HOPBI and PBI incentives. Based on the objective function protocol, the present value of RECs produced from 1 kW of residential solar PV is $0.390/W[1]. If a policy were to be established that requires the utilities to purchase RECs from the Green Bank through a long-term contract (i.e., 15 years) at a price no more than the Alternative Compliance Payment (ACP) of the Class I RPS, then the present value of the RECs produced from 1 kW of residential solar PV is $0.658/W[1]. The realization of REC value can generate revenues over time that covers the upfront expenses of the incentive through the RSIP. Our intent is to try and establish a policy in the 2015 legislative session that would achieve this objective.

[1] See: "Ratepayer Payback" later in this memorandum

This incentive structure for Step 5 is designed to maximize the objective function, or to maximize the amount of clean energy deployed per dollar of ratepayer funds invested enabling Connecticut to realize more of the TAM on a sustainable basis (see Table 1).[2]

Table 1. Objective Functions for the RSIP for Steps 1 through Step 5 for a 7 kW System (EPBB/HOPBI)

Step	**Numerator** (Lifetime kWh)	**Denominator** ($)	**Objective Function** (kWh / $1 invested)
1	187,779	$11,769	16.0
2	187,779	$9,569	19.6
3	187,779	$7,119	26.4
4	187,779	$5,019	37.4
5	187,779	$1,819	103.2

Between Steps 1 to Step 5 of the RSIP, the Objective Function has improved by 650%, maximizing the amount of clean energy produced per dollar of Green Bank funds invested.

Program Description

On March 2, 2012, CEFIA launched the Residential Solar Investment Program (the "RSIP" or "Program"). Per Section 106 of Public Act 11-80, the 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 a home ownership performance based incentive ("HOPBI", and previously an expected performance-based buydown or "EPBB") and a performance-based incentive ("PBI") for the purchase and/or lease of qualifying PV systems respectively.

Green Bank Incentives

The Program offers performance incentives for households that want to own the system (i.e., HOPBI) and for third-party owned (i.e., PBI) solar photovoltaic systems. The HOPBI is paid out after a 30-day performance period, while the PBI is paid out over 6-years based on performance. Through thirty-months of the Program, the Green Bank has approved nearly 4,500 projects that have deployed or are in the process of deploying approximately 32.0 MW of clean energy (see Table 2). **Once all of these projects are installed, the Green Bank will have achieved the minimum legislative target of 30 MW of residential solar PV systems 8 years ahead of schedule**. Over 2,100 direct, indirect and induced job-years have been created as a result of Steps 1 through 4 of the RSIP.[3]

Table 2. Program Data as of August 1, 2014

	EPBB-HOPBI	**PBI**	**Total**
# Projects Approved	2,484	2,003	4,487
Installed Capacity (kW)	17.9 MW	14.0 MW	32.0 MW

[2] Objective Function – Residential Solar Investment Program's Homeowner Performance Based Incentive (HOPBI) and Performance-Based Incentive (PBI) for Step 5 (August 13, 2014)

[3] Connecticut Department of Economic and Community Development has approved of the estimates of jobs created methodology – click here.

Total Incentive Amount	$22.2 MM	$18.6 MM	$40.8 MM
Total Installed Cost	$75.7 MM	$65.4 MM	$141.2 MM
Direct Job-Years Created	447	386	833
Indirect and Induced Job-Years Created	720	621	1,341
Total Job-Years Created	1,167	1,007	2,174
Installed Cost ($/W)	$4.22	$4.66	$4.41
Incentive ($/W)	$1.23	$1.31	$1.28
Leverage Ratio	2.4:1.0	2.6:1.0	2.4:1.0

It should be noted that 662 projects, or 15% of the projects, are located in distressed communities as defined by the Connecticut Department of Economic and Community Development.[4]

Projects under the Program have thus far sought approximately $40.8 million in incentives leveraged by an additional $100.4 million of private investment.

The data on program performance indicates the following:

- **PBI Competition** – over the past 6 months, we are now seeing more competition from PBI installers – dominating the market at over 75% of the RSIP in Step 4. It should be noted that Solar City, a PBI installer, is the #1 residential solar PV installer in Connecticut with 30% market share and that many independent installers are now able to offer a "third party owned"/PBI product through the CT Solar Lease that was re-introduced in the summer of 2013.

- **Costs Declining** – as competition increases in the market, installed costs are decreasing, declining by 20% in 2011 ($5.35/W) to 2014 ($4.28/W). Installed costs for HOPBI/ EPBB installers is currently less (i.e. $4.03/W) than that of PBI installers (i.e. $4.61/W) for Step 4. In 2014-2015, as a result of the recent U.S. government tariffs on Chinese imported solar PV panels, the Green Bank does not expect average costs per watt installed to continue to decline, but instead settle between $3.75 to $4.25/W. Through the SunShot Initiative and Solarize campaigns, the Green Bank will continue to reduce soft costs (i.e., permitting and customer acquisition) in the Connecticut market.

- **Customer Demand Increasing** – the demand for residential solar PV is increasing as indicated by the number of approved projects and the installed capacity resulting from those projects. Demand has doubled in each of the past two years and is on pace to double again in 2014. In 2012, over $25 million in installations occurred in Connecticut. As of August 1, 2014, nearly $68 million in installations have been approved thus far this year, on pace for over $100 million in installations.

[4] According to C.G.S. Section 32-9p, a distressed municipality should be based on "high unemployment and poverty, aging housing stock and low or declining rates of growth in job creation, population, and per capita income." Click here.

- **Ratepayer Subsidies Decreasing** – the percentage of incentives as a portion of the overall project costs are decreasing. In Step 4, the average incentive is $1.07/W – $0.88/W for HOPBI and $1.14/W for PBI – or 24% of the installed cost. In the proposed Step 5, the average incentive will be $0.65/W or 15% of the installed cost – a reduction of 25% from the Step 4 average incentive for the HOPBI. Subsidies have decreased for the HOPBI-EPBB and PBI with each step of the RSIP (see Table 3). The proposed Step 5 incentives for the HOPBI and PBI differ in terms of the percentage decrease from Step 4 actuals, but based on historical payments under the PBI, are economically equivalent in the incentive dollars to be awarded.

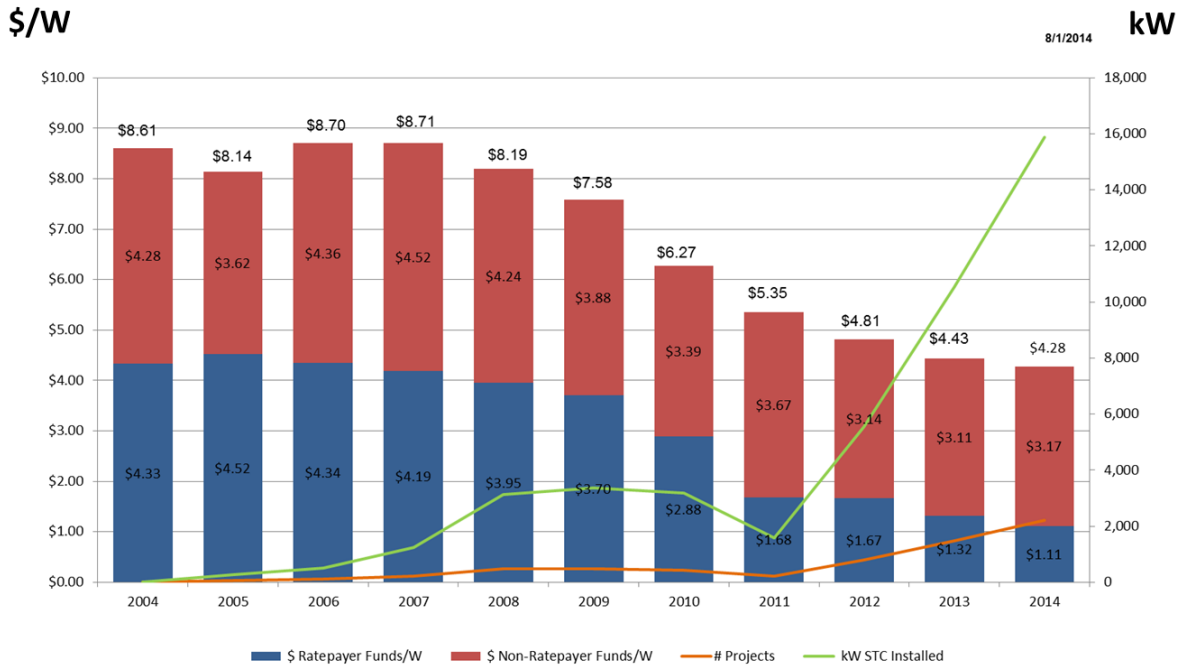
Table 3(A). Decrease in the RSIP by Step for the HOPBI-EPBB and PBI[5]

	HOPBI-EPBB		PBI	
Step of the RSIP	Incentives ($/W)	% Incentive Decrease	PBI ($/W)	Incentive Decrease
Step 1	$1.78	-	$1.78	-
Step 2	$1.55	13%	$1.85	(4%)
Step 3	$1.15	26%	$1.43	23%
Step 4	$0.88	23%	$1.14	20%
Step 5	$0.65	26%	$0.72	37%

For a graphical picture of the Program's performance through August 1, 2014 – see Figure 1. The CCEF-supported programs were in effect from 2004 through 2011, while the Green Bank-supported programs began in 2012.

[5] Based on data from the Market Watch Report of August 1, 2014. It should be noted that the PBI is paid out on performance in $/MWh produced over a 6-year period, while the EPBB was paid out upfront based on estimated performance in $/$W_{PTC}$.

Figure 1. Comparison of Installed Costs, Incentives, Projects and Installed Capacity (2004 through August 1, 2014)



The Green Bank's goal is to create a robust market for residential solar PV systems in Connecticut that helps the state realize its potential – or total available market as noted in the Comprehensive Plan (FY 2015 through FY 2016).

With these goals in mind, we are proposing the following schedule of incentives for Step 5 – see Table 3:

Table 3(B). Proposed Schedule of Incentives for Step 5

	~~EPBB-HOPBI~~			~~PBI~~	
	~~x ≤5 kW~~	~~10 kW ≥ x > 5 kW~~	~~X>10 kW~~	~~x ≤ 10 kW~~	~~X>10 kW~~
~~Current Step 4~~	~~$1.25/W~~	~~$0.75/W~~	~~$0.00/W~~	~~$0.180/kWh~~	~~$0.000/kWh~~
~~Proposed Step 5~~	~~$0.65/W~~		~~$0.30/W~~	~~$0.100/kWh~~	~~$0.050/kWh~~
	EPBB-HOPBI			**PBI**	
	x ≤5 kW	10 kW ≥ x > 5 kW	X>10 kW	x ≤ 10 kW	X>10 kW
Current Step 4	$1.25/W	$0.75/W	$0.00/W	$0.180/kWh	$0.000/kWh
Proposed Step 5	$0.8065/W		$0.430/W	$0.12500/kWh	$0.0650/kWh

It should be noted that the incentive levels for the HOPBI and PBI proposed in Step 5 are economically comparable as required by statute.

To support systems greater than 10 kW, and reduce peak load in the state by encouraging the installation of larger systems, the Green Bank will provide approximately half of the proposed Step 5 incentive – i.e., $0.30/W for the HOPBI and $50/MWh for the PBI. This is the equivalent value of a $25 ZREC. Prior to Step 5 there was no incentive available for systems greater than 10 kW.

Benchmarking Incentives

In order to determine if Connecticut is providing relatively greater or lesser levels of incentives to support the residential solar PV market growth while reducing the market's reliance on incentives in general, benchmarking the incentive against neighboring states as well as the in-state zero-emissions renewable energy credit (ZREC) program provides some useful observations.

Massachusetts

To provide some context as to how the residential market for solar PV in Connecticut is faring with respect to our neighboring state of Massachusetts, we have provided information on various aspects of our programs.

Incentives being offered to consumers in Connecticut versus Massachusetts varies (see Table 4).

Table 4. State Incentive Comparisons to Consumers per W ($/W) for Residential Solar PV in Connecticut and Massachusetts (FY14)

State Incentives	Connecticut	Massachusetts
Tax Incentive	-	$0.16[6]
Upfront Rebate	$1.17	$0.36[7]
SREC	-	$2.38[8]
Total Incentives	**$1.17**	**$2.90**

Based on the average installed costs of solar PV systems in Connecticut and Massachusetts, the out of pocket costs after state and federal incentives vary greatly – showing a greater reliance on subsidies in Massachusetts than Connecticut (see Table 5).

Table 5. Comparison of Out of Pocket Costs to Consumers per W ($/W) for Residential Solar PV after State and Federal Incentives in Connecticut and Massachusetts (FY14)

	Connecticut	Massachusetts
Installed Cost	$4.26	$4.85
State Incentives	$1.17	$2.90
Federal Incentives	$0.93	$0.59
Net Cost to Consumer	**$2.16**	**$1.36**
% of Installed Cost	51%	28%

Massachusetts has installed more than two times the number of residential solar PV systems than Connecticut, but the same on a per capita basis – see Table 6. The average installed costs in Massachusetts are nearly 7% more than they are in Connecticut.

[6] $1,000 state tax credit

[7] Upfront rebate provided by the MassCEC

[8] Present value of 10-year SREC with $285 per REC starting price, declining over time according to 10-year forward schedule per MA RPS Solar Carve-Out II

Table 6. Comparison of Residential Solar PV Markets in Connecticut vs. Massachusetts (March 5, 2012 to June 26, 2014)

State	# of Projects	Average System Size (kW)	Total Capacity Installed (kW)	Installation Comparative (W/Capita)	Installed Cost ($/W)
Connecticut	3,898	7.12	27,770	7.7	$4.41
Massachusetts	8,047	6.31	50,815	7.6	$4.71

For installers that are doing business in both Connecticut and Massachusetts, and that have completed more than 20 projects in each state, the following is a breakdown of their installed costs – see Table 7.

Table 7. Average Installed Cost ($/W) of Projects for Contractors Doing Business in Connecticut and Massachusetts

Installer	Connecticut	Massachusetts	Installed Cost Variance	% Variance (Less)/More
Astrum Solar	$3.73	$4.02	($0.29)	(7.8%)
Next Step Living	$6.31	$5.71	$0.60	9.5%
Real Goods Solar	$4.08	$4.26	($0.18)	(4.4%)
Roof Diagnostics	$4.03	$4.52	($0.49)	(12.2%)
Solar City	$4.92	$5.04	($0.12)	(2.4%)
Sungevity	$4.64	$4.86	($0.22)	(4.7%)
Sunlight Solar Energy	$4.26	$4.79	($0.53)	(12.4%)
Trinity Solar	$4.13	$3.98	$0.15	3.6%

Average installed costs in Connecticut are lower than they are in Massachusetts and for those installers doing business in both states, Connecticut installed costs are lower for most of them.

New Jersey and New York

To provide some context as to how the residential market for solar PV in Connecticut is faring with respect to New Jersey and New York, we have benchmarked incentives being offered to consumers in Connecticut versus New Jersey and New York (see Table 8) and the out of pocket costs after state and federal incentives (see Table 9).

Table 8. State Incentive Comparisons to Consumers per W ($/W) for Residential Solar PV in Connecticut, New Jersey and New York (FY14)

State Incentives	Connecticut	New Jersey	New York
Tax Incentive	-	-	$0.68[9]
Upfront Rebate	$1.17	-	$1.00[10]
SREC	-	$1.87[11]	-
Total Incentives	**$1.17**	**$1.87**	**$1.68**

[9] State tax credit of 25% of net system cost after state and federal incentives, capped at $5,000

[10] Upfront rebate provided by NYSERDA

[11] Present value of 15-year SREC with $182 per REC starting price and estimated 4% price decline over time, comparable to annual rate of decline for MA SREC

Table 9. Comparison of Out of Pocket Costs to Consumers per W ($/W) for Residential Solar PV after State and Federal Incentives in Connecticut, New Jersey, and New York (FY14)

	Connecticut	New Jersey	New York
Installed Cost	$4.26	$4.00	$4.90
State Incentives	$1.17	$1.87	$1.68
Federal Incentives	$0.93	$0.64	$1.17
Net Cost to Consumer	**$2.16**	**$1.49**	**$2.05**
% of Installed Cost	51%	37%	42%

Zero-Emissions Renewable Energy Credits (ZREC) in Connecticut

To provide some context as to how the residential market for solar PV in Connecticut is faring with respect to the commercial and industrial market for solar PV incentives in Connecticut through the ZREC, we have provided nominal and present value comparisons (see Tables 10 and 11) for small (i.e. ≤ 100 kW), medium (i.e. 100 kW < X ≤ 250 kW), and large (i.e. 250 kW < X ≤ 1,000 kW) ZREC projects.

Table 10. Comparison of RSIP Steps 1 through 4 vs. ZREC Rounds 1 and 2 – Nominal Analysis

	RSIP	Small	Medium	Large
Clean Energy Produced (MWh)	550,353	608,735	685,574	804,636
Ratepayer Funds Expended ($)	$42,314,916	$77,259,767	$78,593,999	$71,963,721
Objective Function (kWh / $1 Expended)	13.01	7.88	8.72	11.18
Objective Function ($ / 1 kWh Produced)	$0.077	$0.127	$0.115	$0.089
Clean Energy Deployed (MW_{STC})	33.4	26.5	29.9	29.4

Table 11. Comparison of RSIP Steps 1 through 4 vs. ZREC Rounds 1 and 2 – ZREC Present Value Analysis at a 3% Discount Rate

	RSIP	Small	Medium	Large
Clean Energy Produced (MWh)	550,353	608,735	685,574	804,636
Ratepayer Funds Expended ($)	$42,314,916	$61,657,718	$62,722,512	$57,431,170
Objective Function (kWh / $1 Expended)	13.01	9.87	10.93	14.01
Objective Function ($ / 1 kWh Produced)	$0.077	$0.101	$0.091	$0.071
Clean Energy Deployed (MW_{STC})	33.4	26.5	29.9	29.4

In comparison to the small and medium projects under the ZREC, the RSIP is doing more deployment at a faster pace and with fewer ratepayer resources on both a nominal and present value basis, and is similarly outpacing the large projects under the ZREC on a nominal basis.

Strategic Plan

Is the program proposed, consistent with the Board approved Comprehensive Plan and Budget for the fiscal year?

The Residential Solar Investment Program proposal is consistent with the Board approved Comprehensive Plan for FY 2015 through FY 2016 and the Budget for FY 2015.

The Program is a statutory requirement pursuant to Section 106 of Public Act 11-80.

Ratepayer Payback

How much clean energy is being produced (i.e. kWh over the projects lifetime) from the program versus the dollars of ratepayer funds invested?

The Program proposes a "Race to the Solar Rooftop" target of 10.0 MW for Step 5. At an average forecasted incentive of $0.65/W, $6.5 million of ratepayer capital will be used as incentives to support the deployment of 10.0 MW of solar PV.

The following is a breakdown of the objective function for the RSIP for Steps 1 through the proposed Step 5 (see Table 12).

Table 12. Objective Functions for the RSIP for Steps 1 through Step 5 for a 7 kW System (EPBB/HOPBI)

Step	**Numerator** (Lifetime kWh)	**Denominator** ($)	**Objective Function** (kWh / $1 invested)
1	187,779	$11,769	16.0
2	187,779	$9,569	19.6
3	187,779	$7,119	26.4
4	187,779	$5,019	37.4
5	187,779	$1,819	103.2

Renewable Energy Credits (RECs)

In return for providing the incentive in Step 5, CEFIA owns the renewable energy credits (RECs) produced by the systems. Per the Objective Function Protocol, the REC valuation methodology estimates the nominal and present value (assuming a 3% discount rate) of RECs created through the RSIP (see Table 13).

Table 13. Present Value of RECs per W of Installed Residential Solar PV

Year	**Estimated RECs Produced (1kw)** (MWh)	**Estimated REC Price** ($)	**Estimated REC Revenue (Real)** ($/W)
1	1.139	55.33	0.061
2	1.133	48.57	0.052
3	1.127	45.30	0.047
4	1.122	42.17	0.042
5	1.116	35.26	0.034
6	1.111	25.00	0.023
7	1.105	25.00	0.022
8	1.100	25.00	0.022
9	1.094	25.00	0.021
10	1.089	25.00	0.020
11	1.083	12.50	0.010
12	1.078	12.50	0.009
13	1.072	12.50	0.009
14	1.067	12.50	0.009

15	1.062	12.50	0.009
Total			**$0.390**

Between the incentive proposed in Step 5 of $0.65/W and the present value of the RECs received of $0.39/W, the RSIP in Step 5 is at a level where 60% of the cost of the incentive can be recovered.

If the Green Bank were to be able to sell RECs produced through the RSIP in a long-term (i.e., 15-years) contract at a price not to exceed the ACP of the Class I RPS (i.e., $55), then the present value of RECs per W of installed solar PV would be $0.658/W (see Table 14) – or $0.008/W in revenues more than the $0.650/W in expenses to support Step 5 of the RSIP. Our intent is to try and establish a policy in the 2015 legislative session that would achieve this objective.

Table 14. Present Value of RECs per W of Installed Residential Solar PV Assuming a 15-Year Contract at $50 REC Price

Year	**Estimated RECs Produced (1kw)** (MWh)	**Estimated REC Price** ($)	**Estimated REC Revenue (Real)** ($/W)
1	1.139	50.00	0.055
2	1.133	50.00	0.053
3	1.127	50.00	0.052
4	1.122	50.00	0.050
5	1.116	50.00	0.048
6	1.111	50.00	0.047
7	1.105	50.00	0.045
8	1.100	50.00	0.043
9	1.094	50.00	0.042
10	1.089	50.00	0.040
11	1.083	50.00	0.039
12	1.078	50.00	0.038
13	1.072	50.00	0.037
14	1.067	50.00	0.035
15	1.062	50.00	0.034
Total			**$0.658**

Terms and Conditions

What are the terms and conditions of ratepayer payback, if any?

The incentive of $0.65/W offered under Step 5 for the HOPBI and $100/MWh for the PBI is paid out after a 30-day performance period or over a 6-year period of time respectively based on system performance.

The Green Bank owns all RECs associated with projects that receive an incentive. It is estimated that $0.39/W in revenue (in present value terms) will be received from the sale of RECs into the Class I RPS market under current and forecasted conditions – whereas if the Green Bank were to be able to sell its RECs to the utilities through a long-term contract similar to the ZREC program, then $0.66/W in revenue

(in present value terms) could be received. However, a change in public policy during the 2015 legislative session would be required to achieve this result.

Capital Expended

How much of the ratepayer and other capital that CEFIA manages is being expended on the program?

By statute, CEFIA shall apportion no more than one-third of the total surcharge collected annually, or approximately $9.2 million for the current fiscal year. For Step 5, with a "Race to the Rooftop" target of 10 MW and a proposed incentive level of $0.65/W, then $6.5 million in incentives would be expended on the program over time (with the HOPBI being paid out within the first year of system installation and the PBI being paid out over six years).

Risk

What is the maximum risk exposure of ratepayer funds for the program?

Despite the $3.9 million in REC revenue (in present value terms) that staff expects can be realized as a result of the program, staff expects that the maximum risk exposure for the program is $6.5 million – the estimated value of the incentives provided through Step 5 of the program to achieve the "Race to the Solar Rooftop" target of 10.0 MW. Given the variability of REC pricing, it would be difficult to ascertain the true value that the Green Bank would receive without a forward contract and a fixed price for RECs produced.

Financial Statements

How will the various program investment transactions be accounted for or disclosed on the Green Bank's financial statements?

HOPBI and PBI Financial Incentives – Expense

The funding support for the RSIP would be in the form of a HOPBI or PBI. When funds are disbursed by the Green Bank to payout the HOPBI or PBI earned to the system owner, these disbursement transactions will be reflected on the Green Bank's balance sheet as a reduction to "Cash" (current assets) with a corresponding entry on the profit and loss statement under "Operating Expenses" in the relevant ledger account under "Financial Incentives – HOPBI and PBI," which will have the effect of reducing unrestricted net assets. The HOPBI will be earned over a 30-day period and be paid out in full once earned while the PBI will be earned over a six-year period and be paid out over this six year period on a quarterly basis. For those HOPBI and PBI incentives which have not been paid out in full at the end of the Green Bank's fiscal year, the balance remaining to be paid out will be disclosed in a footnote to the audited financial statements as a future commitment against the Green Bank's unrestricted net assets.

HOPBI Working Capital Loans

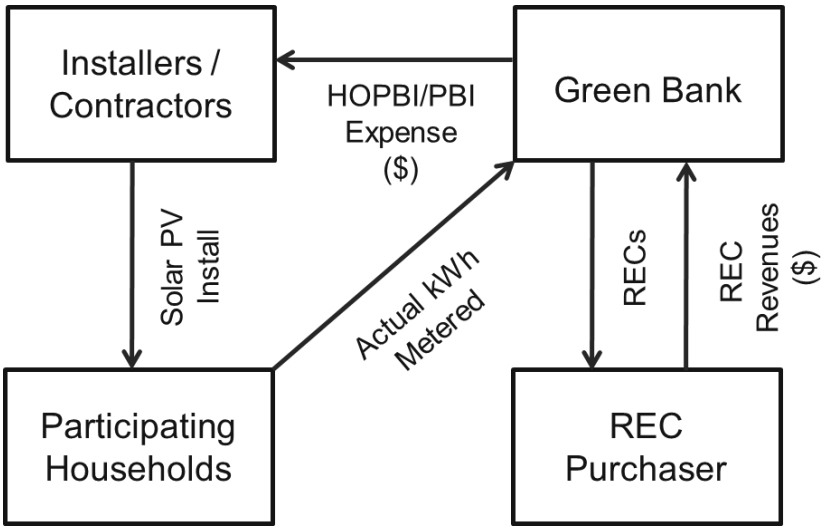
When the Green Bank disburses funds to a PV contractor (contractor) under the HOPBI working capital loan facility, the transaction will be recorded as a reduction to "Cash" and an increase to "Receivable-HOPBI Working Capital Loans" (current asset). When the HOBPI financial incentive is earned by the system owner it will be paid out to the contractor (having been assigned by the homeowner to the contractor at the time of system purchase). The Green Bank will then apply the funds paid to the contractor to the contractor's outstanding working capital loan balance and record the transaction as a

reduction of the "Receivable –HOPBI Working Capital Loans" account and an increase to the Green Bank's operating "Cash" account.

REC Transactions – Revenue

When a sale of RECs generated by these residential systems is consummated, the Green Bank will record the transaction as "Revenue – Residential RECs" on the profit and loss statement and record a corresponding entry on the balance sheet under "Receivables – Residential RECs". Once the Green Bank receives payment from the buyer, the "Receivable – Residential RECs" will be reduced and the Green Bank's operating "Cash" will be increased. A footnote to the Green Bank's financial statements will disclose the anticipated future revenue stream for residential RECs the Green Bank expects will be generated and sold under this program.

Capital Flow Diagram



Target Market

Who are the end-users of the program?

The Green Bank worked with Geostellar[12] 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 15 and 16).

Table 15. 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%
Technically Viable Rooftops (TAM)	659,312	0.52%
Economically Viable Rooftops	506,714	0.68%

[12] www.geostellar.com

Table 16. 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.

Green Bank Role, Financial Assistance & Selection/Award Process

The Green Bank's role is to administer the statutory program. Financial assistance being offered through the program is based on general program guidelines developed by staff and a schedule of incentives approved by the Department of Energy and Environmental Protection.

Program Partners

The program partners are the more than 70 qualified solar contractors that support the installation of rooftop solar PV systems for residential ratepayers.[13]

Risks and Mitigation Strategies

Risk: Proposed incentives for Step 5 are too high and they generate more installations than we had anticipated in FY 2015 with a target of 10.0 MW by June 30, 2015.

Mitigation Strategy: Staff will closely monitor the applications submitted and approved to the program during Step 5. If applications significantly exceed what is expected, staff will propose a Step 6 incentive to the Board to decrease the incentive levels further prior to the end of the fiscal year.

Risk: Proposed incentives for Step 5 are too low and demand significant slows down and alternative sources of incentives are sought (i.e., higher incentive small ZREC).

Mitigation Strategy: Staff will inform DEEP of this concern so as to prevent the ZREC policy from adversely affecting the sustainable market development of the RSIP by continuing to transition the market reliance away from subsidies and towards low-cost and long-term financing that can both reduce Connecticut's Class I RPS compliance costs on all ratepayers while supporting in-state generation.

[13] http://www.energizect.com/residents/programs/residential-solar-investment-program

Operating Procedures

The Residential Solar Investment Program follows the "Programmatic Selection and Award" aspects of the Green Bank's Operating Procedures for financial assistance in the form of grants, loans or loan guarantees, debt, or equity investments.

Resolutions

WHEREAS, Section 106 of Public Act 11-80 "An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future" (the "Act") requires the Connecticut Green Bank ("Green Bank") to design and implement a Residential Solar Photovoltaic ("PV") Investment Program ("Program ~~Plan~~") that results in a minimum of thirty (30) megawatts of new residential PV installation in Connecticut before December 31, 2022;

WHEREAS, as of August 1, 2014, the Program ~~Plan~~ has thus far resulted in approximately thirty-two megawatts of new residential PV installation application approvals in Connecticut, and when complete and commissioned will achieve the minimum target of thirty megawatts established by Section 106 of Public Act 11-80; ~~and~~

WHEREAS, pursuant to Conn. Gen Stat. 16-245a, a renewable portfolio standard was established that requires that Connecticut Electric Suppliers and Electric Distribution Company Wholesale Suppliers obtain a minimum percentage of their retail load by using renewable energy.

WHEREAS, the Green Bank has been assigned by New England Power Pool Generation Information System an Identification Number NON36589 for the residential solar PV projects it supports through the Program, and subsequently the Public Utility Regulatory Authority assigned a Registration No. CT 00534-13 to the behind-the-meter facilities supported by the Program;

WHEREAS, real-time revenue quality meters are included as part of solar PV systems being installed through the Program that determine the amount of clean energy production from such systems as well as the associated renewable energy credits ("RECs") which, in accordance with Program guidelines, become the property of the Green Bank to hold, manage and sell in the Green Bank's sole discretion;

WHEREAS, the Green Bank Board of Directors (the "Board") approved Guidelines and Procedures for the Green Bank Management of Class I REC Asset Portfolio on December 11, 2013; and~~.~~

WHEREAS, pursuant to Section 106 of the Act, the Green Bank has prepared a Program plan~~Plan and~~ with a declining incentive block schedule ("Schedule") that offer direct financial incentives, in the form of homeowner performance-based incentives ("HOPBI") or performance-based incentives ("PBI"), for the purchase or lease of qualifying residential solar photovoltaic systems, respectively.

NOW, therefore be it:

RESOLVED, that ~~the Green Bank Deployment Committee (Deployment Committee) hereby recommends to the Green Bank~~ Board ~~of Directors (the "Board") the~~ approv~~es~~al of the Schedule of Incentives as set forth in Table 3(B) of the Due Diligence Package dated August 20, 2014 to achieve 10.0 MW of solar PV deployment;

RESOLVED, that the ~~Deployment Committee hereby recommends that the~~ Board direct~~s~~ staff that at the point where 6.0 MWs of committed capacity is reached during Step 5 of the

Schedule, or earlier if staff deems it appropriate, to release a report that makes a recommendation to the Deployment Committee on the Step 6 and beyond for capacity allocation and incentive levels; ~~and~~

RESOLVED, that ~~the Deployment Committee hereby recommends that the Board adopt a resolution stating that~~ by (a) the point of the Step 5 incentive where 8.0 MW of committed capacity is reached for either the PBI or the HOPBI models or (b) June 30, 2015 whichever comes first, the Board will approve a Step 6 capacity allocation and incentive level to ensure the sustained and orderly deployment of the residential solar market in Connecticut; and~~.~~

RESOLVED, that the Board hereby directs Green Bank staff to develop a proposal to address the sustainability of the Program in light of the growing market demand while increasing deployment of clean energy sources in Connecticut and minimizing the cost to the ratepayers by giving consideration to the aggregation and sale of RECs acquired through the Program.

Program Implementation Plan

Human Resources

Statutory and Infrastructure Programs – will lead in administering the program and collecting information on each project

Residential Programs – will track leases and loans for each project to track ratepayer payback

Administration – will support the analysis of the data being collected to track the overall performance of the program

Financial Resources

1. Incentives up to 10.0 MW for Step 5 at $0.65/W or $6.5 million;
2. Lease and Loan Programs – see separate due diligence packages

Metrics, Targets, Measurement, Verification & Reporting

Metrics:

- Amount of clean energy produced per dollar of ratepayer funds at risk
- Ratio of private to public capital leveraged and ratio of grants versus financing programs
- Annual clean energy generation
- Total amount of investment

Targets:

- Attract nearly $40 million of non-ratepayer capital through the achievement of a leverage ratio of 1:5
- Deploy 10.0 MW of Class I renewable sources in Connecticut
- Produce 11,400 MWh of Class I renewable sources per year for 20-years
- Reduce soft costs

CEFIA will collect data on the following (the Market Watch Report will continue to report the performance of the program on a weekly basis), but not be limited to:

- Installed capacity
- # of projects
- Installed costs
- Actual clean energy produced
- Benefits achieved including environmental (i.e. emissions avoided) and economic development (i.e. jobs created)

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CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Memo

To: Connecticut Green Bank Board of Directors

From: Bryan Garcia, President and CEO, and Mackey Dykes, Chief of Staff

CC: Dale Hedman, Director of Statutory and Infrastructure Programs, and Kerry O'Neill, Director of Residential Programs

Date: August 13, 2014

Re: Objective Function – Residential Solar Investment Program's Homeowner Performance Based Incentives (HOPBI) and Performance-Based Incentives (PBI) for Step 5

Per Section 106 of Public Act 11-80, 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 homeowner performance based incentives (HOPBI) and performance-based incentives (PBI) for the purchase and/or lease of qualifying PV systems.

The Objective Function for the RSIP is on average 112.7 kWh per $1 of green bank funds invested for a 7 kW system (see Table 1). This is calculated based on an assumed 7kW system.[1]

Table 1. Objective Function for a Typical 7-kW Installation from Step 5 of the RSIP without Program, Administrative, and Servicing Costs

	First Year of the Measure(s)		Lifetime of the Measure(s)	
Program	**kWh / $1 Invested**	**MMBtu / $1 Invested**	**kWh / $1 Invested**	**MMBtu / $1 Invested**
HOPBI	4.4	0.0149	103.2	0.3522
PBI	5.2	0.0155	122.3	0.3663

In comparison, a larger 17 kW system has an Objective Function for the RSIP on average of 386.0 kWh per $1 of green bank funds invested – demonstrating that the larger the system size installed, the greater the Objective Function.

Numerator

The amount of clean energy generated in the first year for a 7 kW residential solar PV installation assuming a capacity factor of 13% is 7,972 kWh – with a degradation of 0.5% producing 187,779

[1] Assumed capacity factor is 13% and install cost is $4.00/w. Prior versions of this calculation have assumed a design efficiency of 77.5% and calculated the EPBB/HOPBI off of the system PTC. The calculation has been adjusted to determine EPBB/HOPBI amount based on the system STC of 7 or 17 kw.

kWh over the 25-year life of the system – or producing 27 MMBtu in its first year and 641 MMBtu over the lifetime.[2] A 17 kW system produces 456,034 kWh and 1,556 MMBtu over its lifetime.

These figures represent the numerators for the first year and lifetime for both the HOPBI and PBI calculations. The amount of generation associated with a standard system size does not vary based on the type of incentive, so the generation figure in the numerator is the same for the HOPBI and PBI calculations.

Denominator

The green bank funds invested (i.e. incentive, credit enhancements, and amount of financing) and received (i.e. REC revenue) to support a typical project through the RSIP include (see Table 2):

Table 2. Denominator of the Objective Function for a Typical 7-kW Installation from Step 5 of the RSIP

Funds Invested[3]	HOPBI	PBI
Incentive	$4,550	$4,267
Credit Enhancement	$0	$0
Amount of Financing	$0	$0
REC Revenue	$2,731	$2,731
Total	**$1,819**	**$1,536**

The HOPBI incentive figure is calculated based on the Step 5 RSIP incentive levels. Current incentives are $0.65/W up to 10kW and $0.30/W above 10 kW. An assumed 7kW STC system draws a HOPBI incentive of $4,550, while a 17 kW system draws a HOPBI incentive of $8,600.

The PBI calculation is different, because the PBI is paid out over 6 years and requires converting future payments into present value. This system will produce 47,236 kWh over its first 6 years (including degradation), which, at $0.100/kWh for up to 10kw (and $0.500/kWh above 10 kW), earns a nominal incentive of $4,724. Discounted at 3%, the real value of the incentive is $4,267.

REC revenue is calculated based on an assumed 15-year of value. Beyond a 15-year horizon, it is unreasonable to assume any REC value due to market and policy uncertainty. The first 5 years of REC value is based on the current value of a 5-year REC strip using the latest pricing data collected by the green bank from REC brokers. The REC value from years 6 through 10 are calculated based on the assumption that the broker-provided price for year 6 will remain constant throughout the five year period. The price for years 11 through 15 are assumed to equal 50% of the year 6 price. A 7 kW system will generate 115.48 RECs over 15 years, which are nominally worth $3,222 based on broker-provided REC prices and the method described above. Discounted at 3%, these RECs are worth $2,731 in real terms.[4]

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[2] Initial CEFIA review has found that on average residential solar PV systems are producing more electricity than was expected. This data is still under review, and if this positive "realization rate" is confirmed, it would necessitate the increase of the figures in the numerator of the OF. *See* CEFIA RSIP Evaluation Program Recommendations, Cadmus Group, May 2014, based on analysis of RSIP Locus monitoring data as compared to energy generation estimates in PowerClerk, normalized against typical meteorological year data accessed from NREL, http://rredc.nrel.gov/solar/old_data/nsrdb/1991-2005/tmy3/.

[3] Note – for tracking purposes, the program, administrative, and servicing costs per project are being tracked, but not currently included in the Objective Function (Version 1.0). A per project program, administrative, and servicing cost takes into account the budget for the program and divides it by the number of target projects. See the Objective Function Protocol (Version 1.0) for more details.

[4] This does not include brokerage fees, which are typically 2-3% of the value of the transaction.

Objective Function

In sum, the denominator of the Objective Function for the HOPBI is $1,819 in its first year and over its lifetime – while the denominator for the PBI is $1,536 in its first year and over its lifetime.[5] This produces a lifetime Objective Function for the HOPBI of 187,779 / $1,819 = 103.2 kWh/$ and a lifetime Objective Function for the PBI of 187,779 / $1,536 = 122.3 kWh/$.

In comparison to prior steps of the RSIP, Step 5 delivers more clean energy per dollar of green bank funds invested (see Table 3).

Table 3. Objective Functions for the RSIP for Steps 1 through Step 5 for a 7 kW System (EPBB/HOPBI)

Step	**Numerator** (Lifetime kWh)	**Denominator** ($)	**Objective Function** (kWh / $1 invested)
1	187,779	$11,769	16.0
2	187,779	$9,569	19.6
3	187,779	$7,119	26.4
4	187,779	$5,019	37.4
5	187,779	$1,819	103.2

If the Connecticut Green Bank were able to sell the RECs generated from the systems it supports through long-term contracts (i.e., 15 years) at a fixed price per REC (i.e., $50) to the utilities to support compliance towards the Class I RPS, then the Objective Function for the RSIP would change (see Table 4).

Table 4. Objective Functions for the RSIP for Steps 1 through Step 5 for a 7 kW System and Assuming a Long-Term REC Contract (EPBB/HOPBI)

Step	**Numerator** (Lifetime kWh)	**Denominator** ($)	**Objective Function** (kWh / $1 invested)
1	187,779	$9,892	19.0
2	187,779	$7,692	24.4
3	187,779	$5,242	35.8
4	187,779	$3,142	59.8
5	187,779	-$58	-3,242.5

The negative denominator and objective function in Step 5 indicates that with a 15-year REC contract at $50 per REC, the RSIP program would become self-sustaining. The Green Bank would be able to generate revenues under this incentive structure that exceeds expenses over time, expanding its ability to support the growth of the residential solar PV market and put revenues towards new investments.

[5] First year and lifetime denominators are the same because all lifetime expenses and revenues are calculated in present value terms and are realized at the date of project creation.

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Residential Solar Investment Program

Post 30 MW and Public Policy Support

Solar Connecticut
August 6, 2014

Agenda

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FINANCE AND INVESTMENT AUTHORITY

- HOPBI and HOPBI Loan Update
- Status of the RSIP
- Total Available Market (TAM) and the Subsidy Model
- Public Policy Goal
- Public Policy Priorities
- Post 30 MW Options
- Looking Ahead and Next Steps

HOPBI and HOPBI Loan
Update

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- **Problem Identified** – identified inadvertent error on June 10th, a couple of days after the law signed into effect on June 6th
- **Launched HOPBI** – announced the HOPBI fix on July 14th
- **Implementing HOPBI** – received Attachment A from 40 installers to date
- **Post-June 6th EPBB Applications** – processing EPBB transfers to HOPBI and new HOPBI applications
- **Launching HOPBI Working Capital Loan** – announcing the availability of the HOPBI Loan on webinar on July 31st
  - 0% loan to cover period between equipment delivery and HOPBI payout
  - Working with Webster Bank to create an easy processing solution
  - Open office hours to be scheduled to get contractors signed up

Status of the RSIP
Performance

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Year	Installed Capacity (kW)	Installed Cost ($/WSTC)	Incentive Cost ($/WSTC)	Market Size ($000's)	Jobs Created (Direct / Total)
2011	1,568	$5.35	$1.68	$8,390	50 / 130
2012	5,548	$4.81	$1.67	$26,675	157 / 410
2013	10,537	$4.43	$1.32	$46,690	275 / 719
2014*	13,862	$4.27	$1.13	$103,750	349 / 911
% since 2011	1,500%	(20%)	(33%)	1,137%	1,124%
Total RSIP	**29,946**				**782 / 2,041**

Increase in demand – decrease in installed costs and incentives – increase in market size and jobs

REFERENCES
2011 data (in "red") is for comparative purposes only. The Residential Solar Investment Program (RSIP) began in March of 2012.
2014 data is as of July 18, 2014. Assume annual performance of 25,000 kW installed capacity at $4.15/W average installed cost.
Data is for approved applications and projects in process or completed
Installed cost for EPBB-HOPBI or local installers for the homeowner model is $4.06/W vs. PBI or third-party owner at $4.59/W in 2014

Status of the RSIP
Towards 20 MW+ a Year

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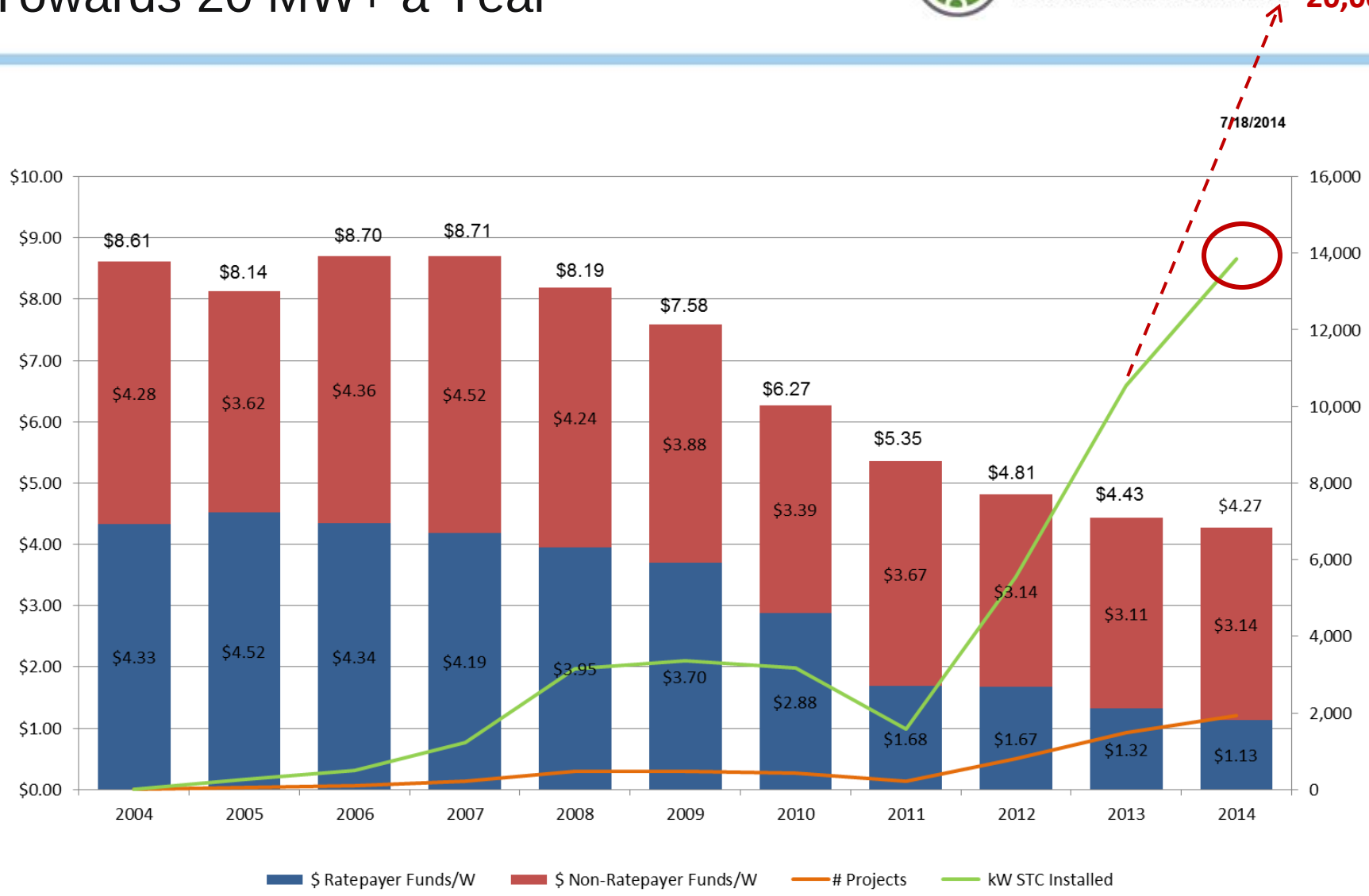

Status of RSIP
Solar Connecticut Members

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FINANCE AND INVESTMENT AUTHORITY

Eligible Contractor	kW of RSIP Projects	Total Cost of Projects ($MM)	Avg. Install Cost ($/W)	Eligible Contractor	kW of RSIP Projects	Total Cost of Projects ($MM)	Avg. Install Cost ($/W)
Aegis	1,003.8	$4.481	$4.46	JD Solar Solutions	439.1	$1.740	$3.96
American Solar	15.5	$0.055	$3.55	Litchfield Hills Solar	245.0	$1.179	$4.81
Astrum Solar	2,156.8	$8.075	$3.74	Made in USA Solar	51.7	$0.231	$4.48
BeFree	1,602.0	$6.382	$3.98	Northeast Smart En	92.4	$0.299	$3.24
Bonner Electric	42.3	$0.173	$4.10	PurePoint Energy	204.0	$0.982	$4.81
CT Electrical, LLC	70.2	$0.367	$5.24	Real Goods Solar	1,460.4	$5.932	$4.06
CT Solar Power, LLC	109.0	$0.474	$4.36	Renewable Res.	325.8	$1.314	$4.03
C-TEC Solar LLC	2,105.9	$8.482	$4.03	Ross Solar Group	2,675.5	$11.395	$4.26
Earthlight Tech	174.6	$0.703	$4.03	Shippee Solar	455.4	$1.736	$3.81
EcoSolar	87.0	$0.396	$4.56	Sunlight Solar	1,128.6	$4.830	$4.28
Elektron Solar, LLC	64.0	$0.304	$4.75	Sun-Wind Solutions	61.5	$0.256	$4.17
Encon, Inc.	1,209.4	$4.797	$3.97	Waldo Renewable	216.8	$1.108	$5.11
Evergreen Energy	50.3	$0.221	$4.40	**Total Solar Conn**	**16,333**	**$67.018**	**$4.10**
Harness the Sun	286.1	$1.095	$3.83	**Total Connecticut**	**30,611**	**$135.095**	**$4.41**

Status of the RSIP

Home Ownership vs. 3rd Party Ownership

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	Home Ownership (EPBB-HOPBI)		3rd Party Ownership (PBI)		
Step	**Installed Capacity** (kW)	**Installed Cost** ($/W$_{STC}$)	**Installed Capacity** (kW)	**Installed Cost** ($/W$_{STC}$)	**Incentive** ($/W$_{STC}$)*
1	1,101	$5.344	79	$4.732	$1.777
2	4,323	$4.337	1,881	$4.919	$1.546
3	9,444	$4.101	4,248	$4.616	$1.147
4	1,868	$4.057	7,051	$4.590	$0.889
Total	**16,736**		**13,260**		

REFERENCES

2014 data is as of July 18, 2014. This is for projects that are approved, in process or completed.
PBI incentive is discounted as it is paid out over a 6-year period instead of being paid out upfront or in the first month
Incentive for the PBI is based on nominal rate.

Residential Solar PV TAM in Connecticut

Total Addressable Market

3.89 GW of Capacity

Market Share Segment

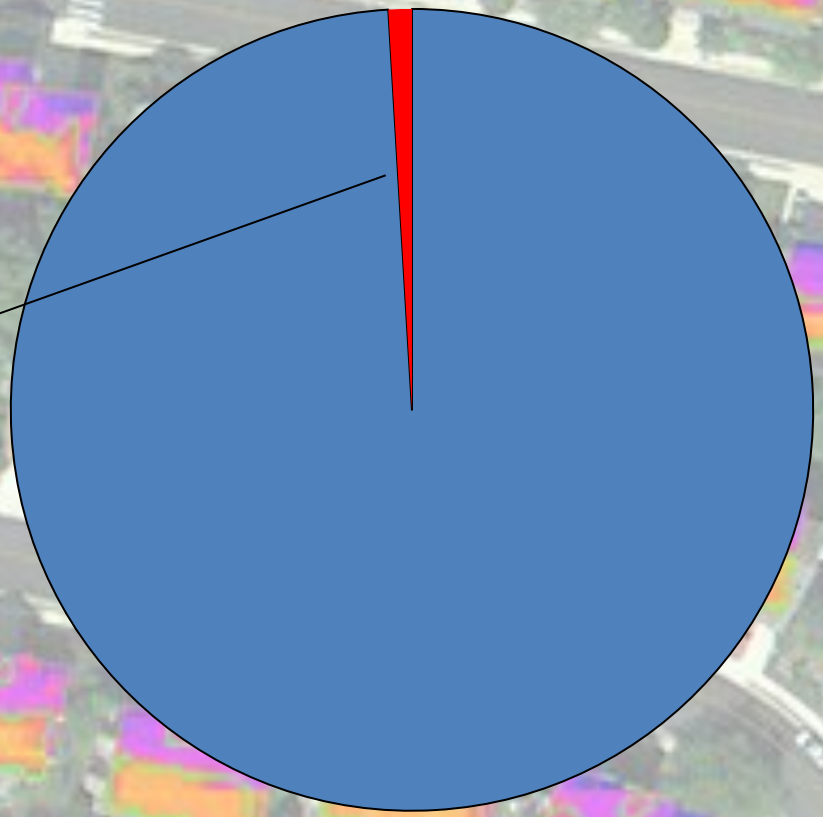
43 MW of capacity

Penetration is ~1% of TAM

1.00 GW of Capacity

$4 billion of investment

$1 billion in subsidies?



Subsidy Model
Residential Rooftop Solar PV

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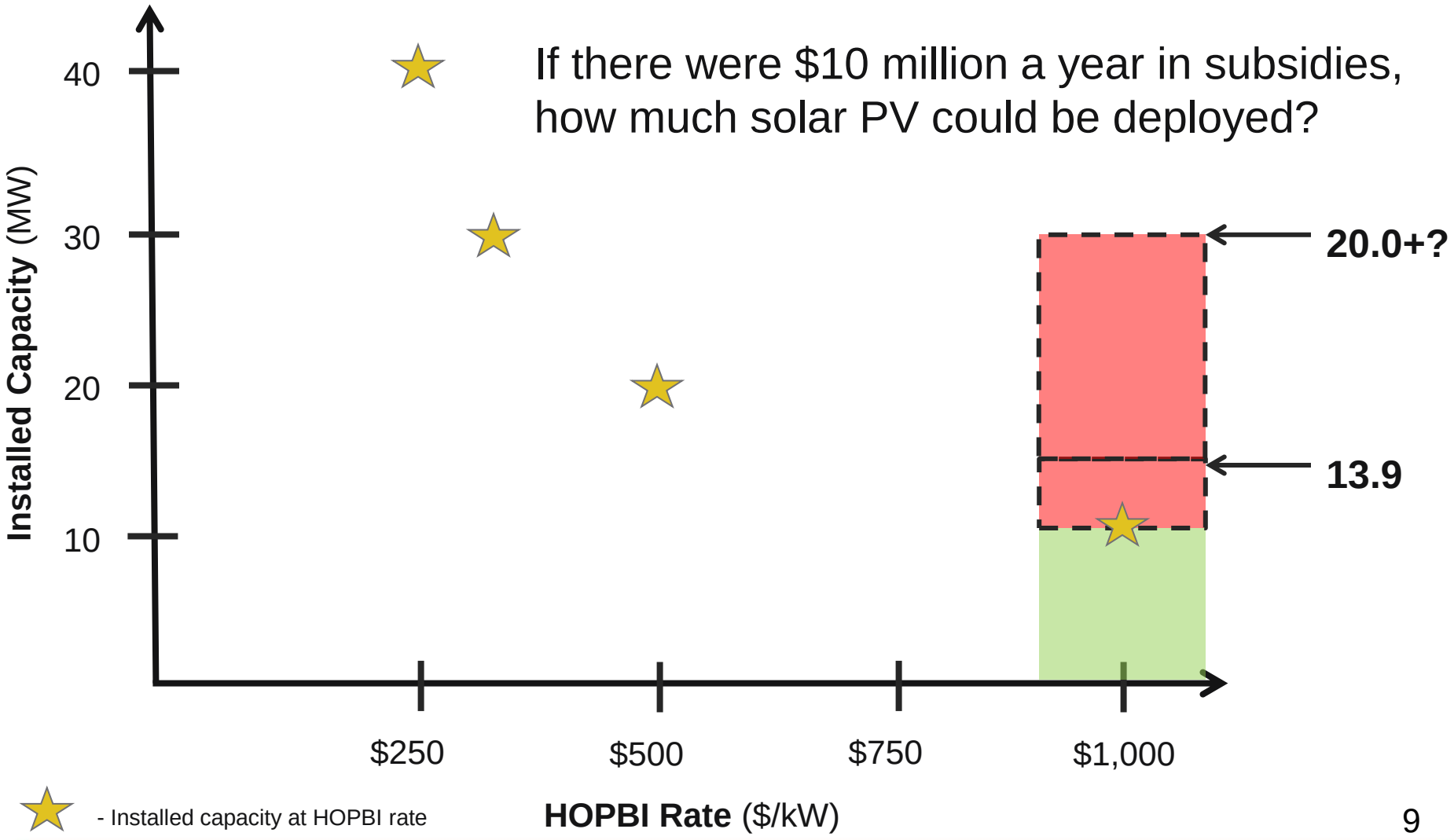

Public Policy Goal
Residential Solar Investment Program

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- The Clean Energy Finance and Investment Authority established pursuant to section 16-245n of the general statutes, as amended by this act, shall structure and implement a residential solar investment program established pursuant to this section, which shall result in a **minimum of thirty megawatts** of new residential solar photovoltaic installations located in this state **on or before December 31, 2022**, the annual procurement of which shall be determined by the authority and the cost of which shall not exceed one-third of the total surcharge collected annually pursuant to said section 16-245n.

REFERENCES
30 MW is equivalent to about 4,300 homes installing 7 kW systems.

Big Picture

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- **Connecticut Green Bank does not have enough money to meet the growing demand** – especially since we achieved the legislative target over 8 years ahead of schedule and while demand is increasing exponentially
- **Connecticut Green Bank wants to enable the market to continue its progress way beyond legislative target of 30 MW and towards the TAM (i.e., greater than 1 GW)**
  - Financing Programs – Green Bank (Smart-E Loan, CT Solar Loan, and CT Solar Lease) and private market products…installers must use more private capital
  - Public Policy Support – we may have discovered a way for the Connecticut Green Bank to continue to support the RSIP, but we need the help of the industry

Current

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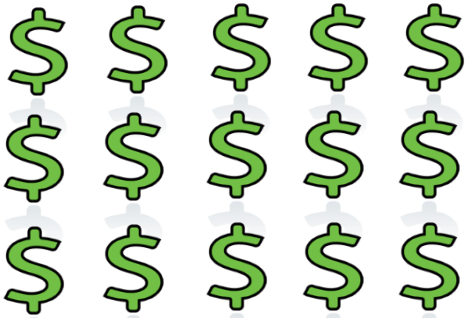
RPS Market (2014)

$150,000,000



RSIP

$10,000,000

Proposal

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FINANCE AND INVESTMENT AUTHORITY

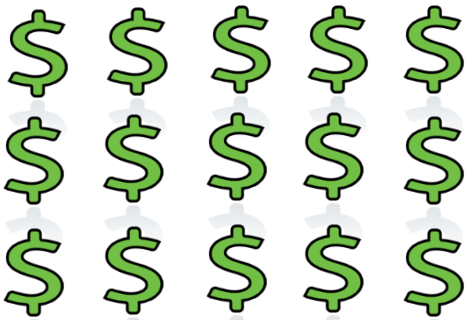
RPS Market (2014)

$150,000,000

15-Year Contracts for Class I RECs from Residential Solar in CT

RSIP

$10,000,000



Public Policy Support
2015 Legislative Session

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

- **Commitment from solar industry that the Connecticut Green Bank's legislative priorities are the industry's priorities** – we are working together!
  - Long-term contract for RECs – without it, we can't continue to support the RSIP because it is chewing up the Connecticut Green Bank's resources
  - Modify Section 106 of PA 11-80 – include requirement for utilities to sign long-term contracts (i.e. 15 or more years) for RECs created through the RSIP; fix the inadvertent error
  - Increase capitalization by accessing green bonds or other sources of revenues
  - Establish a community clean energy (i.e., community solar) pilot program
  - Crowd funding for Connecticut residents

Post 30 MW Options

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- **Incentive** – Step 5 HOPBI between $0.50-$0.75/WSTC (up to 10 kW) or PBI of $80-$120/MWh for 6 years – less than a ZREC equivalent price of $55/MWh for 15 years.
  - Should CGB buy ZRECs for systems greater than 10 kW?
- **Capacity** – still to be determined "Race to the Rooftop" target
- **Loan** – X% interest for Y years in lieu of the RSIP – also OBR in 2015/2016
- **Technical Assistance** – training to sell financing (e.g., LCOE, cash flow, etc.), working capital to manage business growth (e.g., SBE, SBA, etc.), "soft cost" reduction strategies (i.e., SunShot Initiative), continuing to support marketing and customer acquisition strategies (i.e. Solarize suite)
- **Tariff Issues** – not a role for the Connecticut Green Bank, but what is Solar Connecticut doing to address the Chinese tariff issue for its members – consortium buying? Lobbying feds?

Status of the RSIP

Home Ownership vs. 3rd Party Ownership

CLEAN ENERGY FINANCE AND INVESTMENT AUTHORITY

	Home Ownership (EPBB-HOPBI)		3rd Party Ownership (PBI)			
Step	**Installed Capacity (kW)**	**Installed Cost ($/WSTC)**	**Installed Capacity (kW)**	**Installed Cost ($/WSTC)**	**Incentive ($/WSTC)***	
1	1,101	$5.344	79	$4.732	$1.777	
2	4,323	$4.337	1,881	$4.919	$1.546	-13%
3	9,444	$4.101	4,248	$4.616	$1.147	-26%
4	1,868	$4.057	7,051	$4.590	$0.889	-23%
Total	**16,736**		**13,260**			
5					**~ 25%**	

An additional 30% of 25% RSIP reduction – or 7.5% will come from an increase in the value of the ITC to the customer

REFERENCES

2014 data is as of July 18, 2014. This is for projects that are approved, in process or completed.

PBI incentive is discounted as it is paid out over a 6-year period instead of being paid out upfront or in the first month. Incentive for the PBI is based on nominal rate

Next Steps

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- **Installers** – meet with Solar Connecticut and non-Solar Connecticut (e.g., Solar City) to discuss post-30 MW and public policy support
- **Deployment Committee Chair** – (week of August 11th)
- **Deployment Committee** – make a recommendation to the Deployment Committee (week of August 18th)
- **Board of Directors** – make a recommendation to the Board of Directors (week of August 25th)
- **DEEP** – seek formal written approval of incentive (week of August 25th)

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Looking Ahead

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	Current (Step 4)	**Near-Term** (Next Year)	**Mid-Term** (Through 2016)	**Long-Term** (Post 2016)
Public Policy	RSIP	Long-term RECs Modify Sec. 106 Green Bonds Community Energy Crowd Funding	TBD	TBD
Finance	Smart-E CT Solar Loan CT Solar Lease	Smart-E – OBR	Open Market – OBR	TBD
Incentive ($/W)	$0.90	$0.50-$0.75	TBD	TBD
ZREC Equivalent ($/REC)	$60	<$55	$20<X<$40	TBD

Public Policy Support
15-Year REC Contract

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- **What is an RPS and how long has it been around?**
- **What is a REC and what is it used for?**
- **What is an ACP?**
- **What is a ZREC?**
- **What are current ZREC prices in the market?**
- **What is the EPBB-HOPBI and PBI current ZREC price equivalent for Step 4 of the RSIP?**

A requirement for the EDCs to purchase RECs from the Connecticut Green Bank through a long-term contract for RECs created through the RSIP could lower RPS compliance costs for all ratepayers while deploying clean energy in our state and creating local jobs!

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FINANCE AND INVESTMENT AUTHORITY

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Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP and CIO; Ben Healey, Senior Manager, Clean Energy Finance

CC: Bryan Garcia, President and CEO; Mackey Dykes, Chief of Staff; Brian Farnen, General Counsel and CLO; George Bellas, VP of Admin and Finance

Date: August 19, 2014

Re: CT Request for Increased Warehouse Capacity and Solar Loan Program Changes

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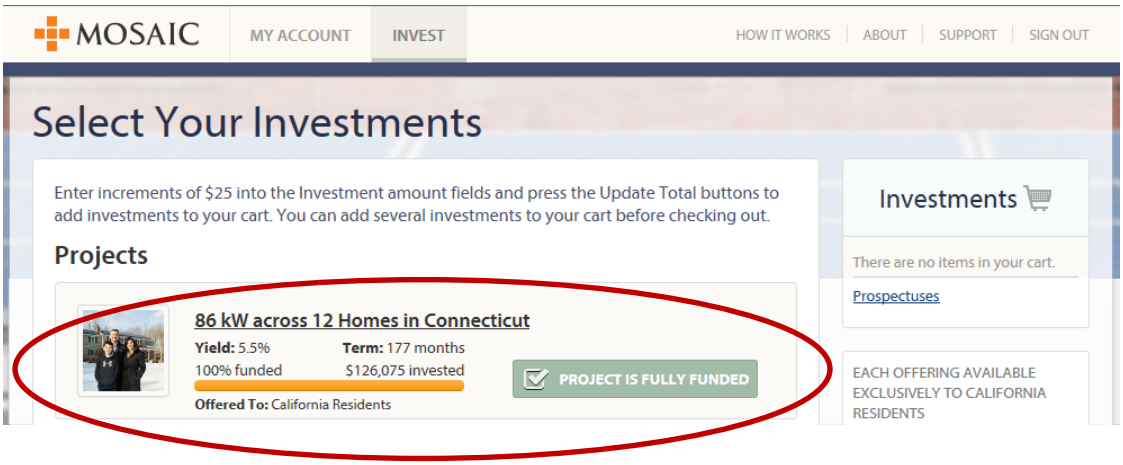
Background

The CT Solar Loan Program (the "Program") has been highly successful to date. As of August 12, 2014, 230 homeowners have been approved for a CT Solar Loan, totaling over $4.9 million in principal, with $3.25 million already closed and $1.35 million funded ($850,000 fully funded and $500,000 partially funded). Sungage Financial, Inc. ("Sungage") continues to do an able job originating and servicing loans under the Program (assisted by Concord Servicing Corporation as sub-servicer), and is now working with 26 installers across the state to offer the product directly to their customers.

On the investor side, the Connecticut Green Bank (the "Green Bank") entered into a Loan and Security Agreement ("LSA") with the crowdfunding firm Solar Mosaic, Inc. ("Mosaic") in February 2014. Under this LSA, Mosaic agreed to purchase up to $4 million of the first $5 million in loans funded under the Program. To date, the Green Bank has sold Mosaic an initial pool of 12 loans, totaling just over $125,000 in senior debt capital, which has already been fully subscribed by Mosaic's investor base (see screenshot of Mosaic website below).



Moreover, the Program's success is perhaps best evidenced by the fact that Sungage has recently closed on a new line of debt capital to support residential solar lending in Connecticut and beyond, with a federally chartered credit union with more than 400,000 members and over $4 billion in assets. Although the terms of this new relationship are not yet public, Green Bank staff understands that the offering to homeowners, which should become available later in Q3 or Q4 2014, will closely mirror the terms currently offered under the Program, which demonstrates that the Green Bank has achieved a core goal of having incubated a clean energy financing solution that the market is now willing to adopt whole cloth and without credit enhancements.

On July 19, 2013, the Green Bank Board of Directors authorized $5 million in warehouse funding for this Program. With that threshold now reached due to the overwhelming success of the Program, staff is bringing it back to the Board of Directors to request 1) an increase in warehouse funding to keep the Program running up through the date at which Sungage's new debt capital is available, and perhaps beyond if necessary based on market dynamics, and 2) authorization for a small number of programmatic changes in light of the current market environment, which has evolved since the Program was originally established.

Request for Increased Warehouse Capacity

Staff requests Board of Directors approval to expand the Program's funding warehouse within a new subsidiary limited liability company. Accordingly, this request has two parts:

1) In accordance with the Green Bank's approved FY15 budget, staff requests Board of Directors authorization for another $5 million in warehouse capacity for the Program. As with the initial $5 million in capacity, staff plans to aggregate and sell off pools of these loans to one or more private capital provider, such that no more than 20% of this new $5 million in capacity will remain on the books of the Green Bank as term loans after such a sale is executed; and

2) To facilitate a second sale of pooled loans under the Program, staff requests authorization to create a new subsidiary limited liability company, CT Solar Loan 2 LLC. In the event that Mosaic chooses not to expand its existing commitment to the Program, it will be easier to source a new senior debt investor if funds (and, importantly, the capital provider's collateral) are not comingled in a single legal entity. CT Solar Loan 2 LLC would become a new wholly-owned subsidiary of CEFIA Holdings LLC, which, in turn, is wholly-owned by the Green Bank.

Proposed Program Changes

Along with the proposed increase in warehouse capacity, there are two meaningful changes to the Program that staff would like to make:

1) When staff first brought the Program to both the Deployment Committee and the Board of Directors, the associated programmatic term sheet articulated that funding would be for loans with terms of up to 15 years. Since then, it has become clear that the market can support 20-year loans, as demonstrated by financing products currently offered by SunEdison, SunPower, and even by Mosaic itself through a partnership with the installer

RGS Energy. Green Bank staff would therefore like the flexibility to extend the maturity of loans offered under the Program out to 20 years; and

2) Currently, the Implementation and Servicing Agreement between the Green Bank and Sungage technically allows for the financing of battery storage systems along with residential PV installations under the Program. However, this technology pairing was never formally presented to the Board of Directors. Staff is now requesting the formal authority to allow Sungage (or any other partner operating under the auspices of the Program) to finance battery storage along with solar PV systems for qualifying homeowners, subject to standard underwriting criteria and loan caps.

Resolutions

WHEREAS, under Section 99 of Public Act 11-80 "An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future," the Connecticut Green Bank (the "Green Bank") is directed to, amongst other things, develop separate programs to finance and otherwise support clean energy investment in residential, municipal, small business and larger commercial projects and such others as the Green Bank may determine;

WHEREAS, the CT Solar Loan Program (the "Program") supports homeowners who desire to purchase solar PV systems for their homes with low-cost, long-term financing, in line with Public Act 11-80, the State's Comprehensive Energy Strategy, and the Green Bank's Comprehensive Plan;

WHEREAS, having nearly exhausted the Green Bank's initial authorization of $5,000,000 in revolving loan advances for the Program, as approved by the Board of Directors on July 19, 2013, Green Bank staff now seeks authorization to lend to a new CT Solar Loan subsidiary for the purposes of funding loans to be granted to Connecticut homeowners under the Program;

NOW, therefore be it:

RESOLVED, that the Board of Directors grants approval for the Green Bank to create a new CT Solar Loan subsidiary for the sole purpose of funding further loans to be granted to Connecticut homeowners under the Program;

RESOLVED, that the Board of Directors grants approval for the Green Bank to make advances to this new CT Solar Loan subsidiary, for Program lending inclusive of originating loans to homeowners with tenors of up to 20 years and inclusive of battery storage systems, subject to the following limits:

A. A maximum limit for all long-term loans, subordinated to senior investors, of $1,000,000; and

B. A maximum limit for revolving loan advances, to aggregate a portfolio of Program loans, in the amount of $5,000,000, for a period not to exceed three (3) years;

RESOLVED, that the President of the Green Bank, and any other duly authorized officer of the Green Bank, is authorized to execute and deliver any contract or other legal instrument

necessary to effect the acquisition of a portion of the portfolio of Program loans by one or more senior investors on such terms and conditions as are materially consistent with the term sheet dated November 21, 2012 and approved by the Deployment Committee and the memorandum submitted to the Board of Directors on July 12, 2013, except as modified herein, and as he or she shall deem to be in the interests of the Green Bank and the ratepayers, no later than twelve (12) months from the date of this resolution; and

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

Submitted by: Bryan Garcia, President and CEO; Bert Hunter, EVP and CIO; Ben Healey, Senior Manager of Clean Energy Finance

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CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Memo

To: Board of Directors

From: Bryan Garcia, President and CEO, Bert Hunter, EVP and CIO, Alexandra Lieberman, Sr Manager, Finance

CC: Mackey Dykes, Chief of Staff, Brian Farnen, General Counsel and CLO, Kerry O'Neill, Director Residential Programs, Jessica Bailey, Director, Commercial and Industrial Programs, Ben Healey, Sr. Manager, Finance

Date: August 19, 2014

Re: Report to the Board of Directors – Solar Lease 2, Interest Rate Swap Contracts

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INTRODUCTION

At the Board of Directors (the "Board") meeting held on June 26, 2013, the Board passed resolutions authorizing the Solar Lease 2 Program (the "Program") in the manner described in the Program Proposals. As part of the funding structure for the Program, First Niagara arranged for $26,700,000 in debt financing under a credit agreement (the "Credit Agreement") for the Program's SPV, CT Solar Lease 2 LLC ("CTSL2"), with a syndicate of local Connecticut banks: Webster Bank, Liberty Bank and Peoples United Bank (collectively, the "Bank Syndicate"). Pursuant to the Credit Agreement, CTSL2 is permitted to borrow under the credit facility in amounts that are at least $2.6 million each. In order to contain exposure to interest rate risk on this funding, the Credit Agreement requires CTSL2 to enter into contracts (each one, an interest rate swap, or simply a "swap") whereby at least 75% of the floating rate interest rate obligation under the Credit Agreement (based on 1 month LIBOR) is exchanged for a fixed rate obligation. As the draw schedule is now more clearly defined, staff is working with First Niagara to arrange the swaps that will contain exposure to interest rate risk and fulfill CTSL2's obligations under the Credit Agreement.

The purpose of this memorandum and presentation is to update the Board on the Program and the plans being made to enter into the interest rate swaps.

SOLAR LEASE 2 PROGRAM UPDATE (from July 18, 2014 BoD meeting update)

The Solar Lease 2 program uses $3.5 million in repurposed ARRA-SEP funds as a loan loss reserve and $9.5 million in debt and equity from the Green Bank approved by the Board to attract $50 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 and leases and power purchase agreements to

qualifying commercial scale end users. The following table presents Program performance for the residential portion of the Program through June 30, 2014:

Table 1. 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)[1]	44,190	15,618	3,218	63,026
Energy Saved (MMBtu)[2]	-	-	-	-
Subsidies ($'s)	-	-	-	-
Credit Enhancement ($'s)[3]	$401,843	$157,099	$27,330	$586,272
Loans or Leases ($'s)[4]	$1,044,792	$408,457	$71,058	$1,524,307
Total Green Bank Investment ($'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 Program 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.

As of June 30, 2014, the program has not entered into any commercial scale agreements, but has a significant pipeline of transactions in process with several municipalities, not-for-profits and for profit commercial-scale end users for projects ranging in size from about 50kW up to 1,000 kW (1 MW). After the close of the fiscal year, the Green Bank entered into two PPAs – one with the Town of Hampton for a 127.75 kW system for its elementary school and a multi-site project for the Town of Coventry for systems totaling 446.17 kW. In addition to this progress, several more leases and PPAs are being negotiated and documented. In fact, demand is so strong that staff has been working with the investor, US Bank, and First Niagara to increase the portion of the fund that can be used for commercial-scale projects (originally set at about 3,000 kW). Although this would reduce the portion of the fund dedicated to residential projects, the uptake on the residential side has been slower than anticipated. Consequently, staff believes it can balance the market demands between the commercial and residential markets.

IMPLICATIONS FOR PROGRAM FUNDING

Staff has translated the residential and commercial pipeline into a forecast of borrowings under the credit agreement, which must be in amounts that are at least $2.6 million. These borrowings are estimated to take place in 7 borrowings from December of 2014 until May of 2016. The aggregate of these borrowings are expected to total the maximum amount available under the Credit Agreement, $26,700,000. Since at least 75% of the floating rate interest rate obligation of these borrowings under the Credit Agreement must be exchanged for a fixed rate obligation, CTSL2 will enter into interest rate swaps in an aggregate face amount of approximately

[1] Over the life of the measure(s)
[2] First year of the measure(s)
[3] 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.
[4] Based on the Objective Functions for the CT Solar Lease, the loan financing represents about 13% of the value of the lease.

$20,025,000. Staff has worked with First Niagara to fashion a program of interest rate swaps for CTSL2.

Staff as advised by First Niagara intends to enter into 7 interest rate swaps in the following amounts which correspond to borrowings on the dates indicated:

Tranche	Draw Date	Amount Swapped
Tranche 1	12/15/2014	$2,983,825
Tranche 2	1/15/2015	$3,480,188
Tranche 3	3/15/2015	$3,192,210
Tranche 4	7/15/2015	$2,986,900
Tranche 5	8/15/2015	$3,434,935
Tranche 6	12/15/2015	$1,800,188
Tranche 7	5/15/2016	$2,190,925

The total of the tranches is $20,069,171, just slightly more than the minimum requirement of $20,025,000.

CHARACTERISTICS OF A SWAP AND IMPLICATIONS FOR CTSL2

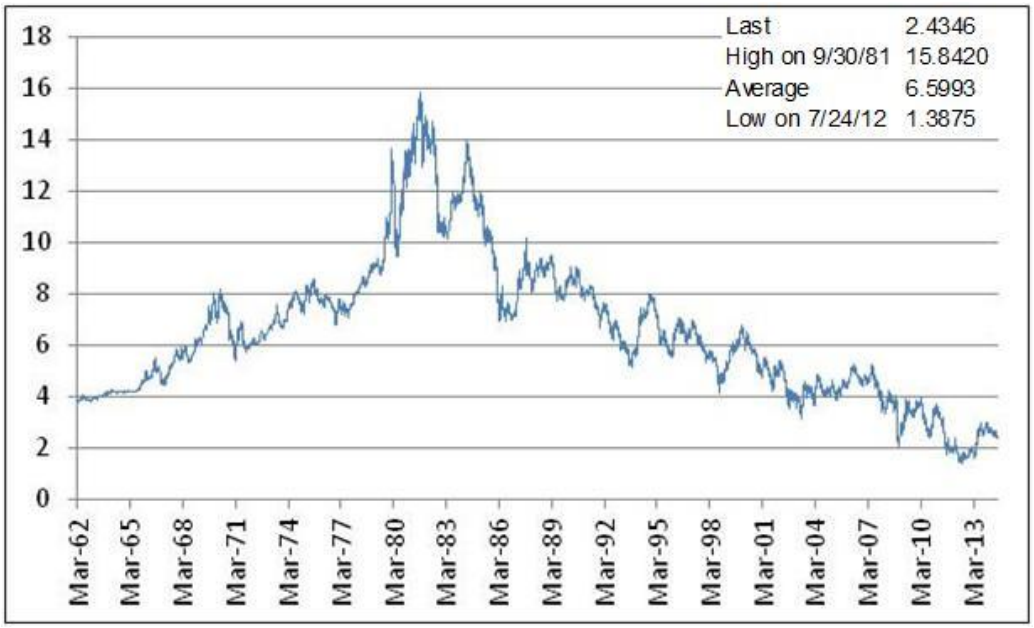
First Niagara's Capital Markets Group has presented a summary of the proposed swap program in the attached document. As stated, CTSL2 is required to enter into swap contracts with respect to a minimum amount of 75% of borrowings under the Credit Agreement. Interest rate swaps, as explained in more detail by First Niagara in the attached report, generally have the following characteristics

- A swap permits the underlying long term financing to be done on a floating rate basis, with the swap serving to manage interest expense over the life of the loan.
- By separating the funding from the process of managing the organization's debt servicing costs, it provides for more flexibility and advantageous terms for the Green Bank.
- The Green Bank can employ a "Portfolio Approach" to reduce exposure to increased rates, while benefiting from the current low rate environment.
- Allows the Green Bank to fix the rate for the entire term of the loan, or for a shorter period of time.
- The Green Bank can terminate all or a portion of the swap without impacting the underlying financing.
- If a portion of the financing is left on a floating rate, the opportunity exists to pre-pay part of the loan without adjusting the underlying swap overlay.
- In the event of an early termination, allows for a "bilateral" make-whole provision.
- There are no upfront fees associated with a swap transaction.

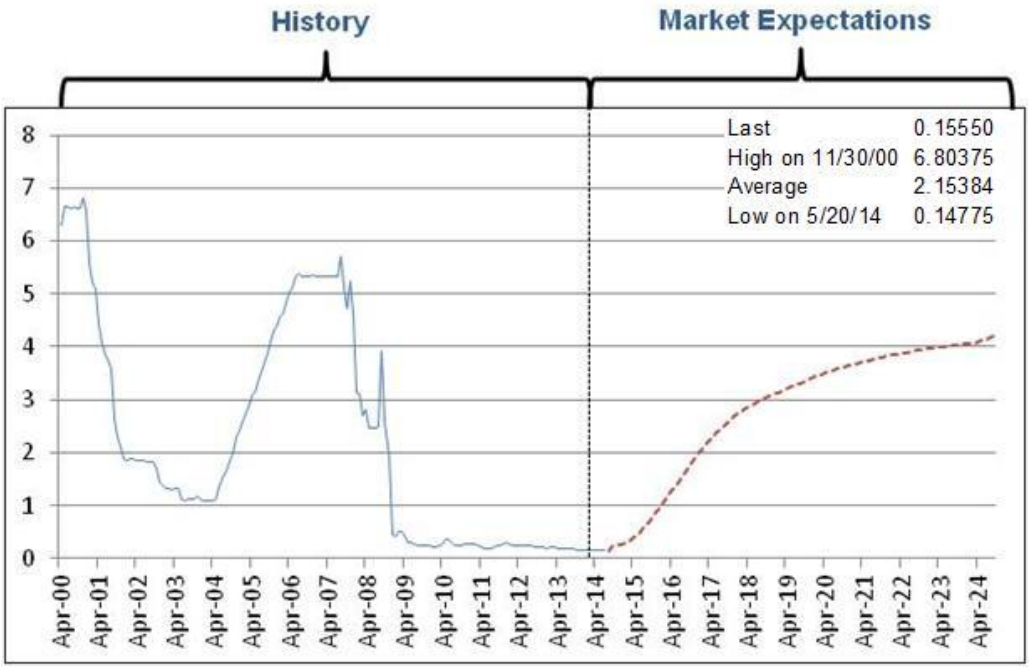
After discussing how to proceed with the swap program, staff has elected to proceed by entering into swap contracts prior to borrowing under the Credit Agreement in order to benefit from the current low rate environment.

CURRENT INTEREST RATE ENVIRONMENT

Historical Perspective of 10 year Treasury (from 1962)



Historical Perspective and Expectations of 1-month LIBOR (from 2000)



PROPOSED INTEREST RATE SWAP TERMS (1ST TRANCHE)

Effective Date:	December 15, 2014
Maturity Date:	December 15, 2025
Notional Amt:	$2,938,825 (approx 77% of $3.8mm loan amount)
Amortization:	Straight-line; First 6 years based on 2.1765% of Initial Loan; Remainder based on 1.3325% of Initial Loan
Fixed Rate:	**2.21%,** subject to market conditions
Day Count:	ACT / 360
Floating Rate:	1 month USD-LIBOR-BBA + Credit Spread
First Payment Date:	January 15, 2015
First Principal Payment:	January 15, 2015

So, by way of example, the first tranche above converts the base rate for CTSL2's floating rate cost of funds (1 Month LIBOR) into a fixed interest rate of 2.21%.

To the base rate of 2.21% is added the credit spread under the Credit Agreement (2.50%) to get CTSL2's total interest cost for the swapped portion of 4.71%.

SUMMARY INTEREST RATE SWAP TERMS (ALL TRANCHES)

In a similar fashion, we would contract for swaps for the other tranches at the following rates (again, subject to market conditions):

Tranche	Draw Date	Amount Swapped	Current Base Rate
Tranche 1	12/15/2014	$2,983,825	2.21%
Tranche 2	1/15/2015	$3,480,188	2.24%
Tranche 3	3/15/2015	$3,192,210	2.31%
Tranche 4	7/15/2015	$2,986,900	2.46%
Tranche 5	8/15/2015	$3,434,935	2.50%
Tranche 6	12/15/2015	$1,800,188	2.68%
Tranche 7	5/15/2016	$2,190,925	2.84%

The total average interest rate of the swaps above is 2.43% which is then added the credit spread under the Credit Agreement (2.50%) to get CTSL2's total interest cost for the entire swapped portion of 4.93%. This compares favorably to the interest rate used to model the CTSL2 program of 5.25%.

BALANCE OF FUNDING REQUIREMENT

Staff does not intend to swap the balance of the borrowed funds under the Credit Agreement. The reasoning is:

1. By leaving a portion of the financing on a floating rate, CTSL2 is able to pre-pay part of the underlying loan without adjusting the underlying swap overlay as homeowners and commercial users exercise their right, as a portion of them will, to purchase their systems after the 6th year of their contract.
2. By leaving a portion of the financing on a floating rate, CTSL2 is able to benefit from the upward sloping yield curve which will build in interest rate savings that can be used to offset interest rate increases in later years.
3. No one knows the precise course of interest rates (although in general interest rates are expected to increase in 2015 and for some period thereafter). As advised by First Niagara, leaving a portion un-swapped covers the possibility that short term rates may very well stay generally lower even as longer term interest rates increase.

In the early periods, these savings are expected to be substantial, and in today's market, the base interest rate would be approximately 0.16% which is then added the credit spread under the Credit Agreement (2.50%) to get CTSL2's total interest cost for the entire un-swapped portion of 2.66%. The current weighted average of the swapped and un-swapped funding cost would (in today's market) be 4.36%. Again, this compares favorably to the interest rate used to model the CTSL2 program of 5.25%.

RISK IN A SWAP

As explained by First Niagara, over its life, a swap transaction can be *"in-the-money", or "out-of-the-money"*:

- If the Green Bank elected to terminate the swap at a time when market rates for the remaining term of the transaction had fallen ***below*** the contract rate, it would be ***out-of-the-money*** and there would be a settlement payment made by the Green Bank to the swap provider. This risk would be similar to the one faced in a traditional fixed-rate loan. This is not a penalty, but a calculation related to the present value of the interest differential on the remaining cash flows of the transaction.

- Similarly, in a higher rate environment the swap would be ***in-the-money*** and the swap provider would make a payment to the Green Bank.

- The grid below provides perspective of the termination value associated with Tranche 1, if market rates for the remaining term were to rise, or fall over the remaining life.

Tranche 1 Yield Maintenance

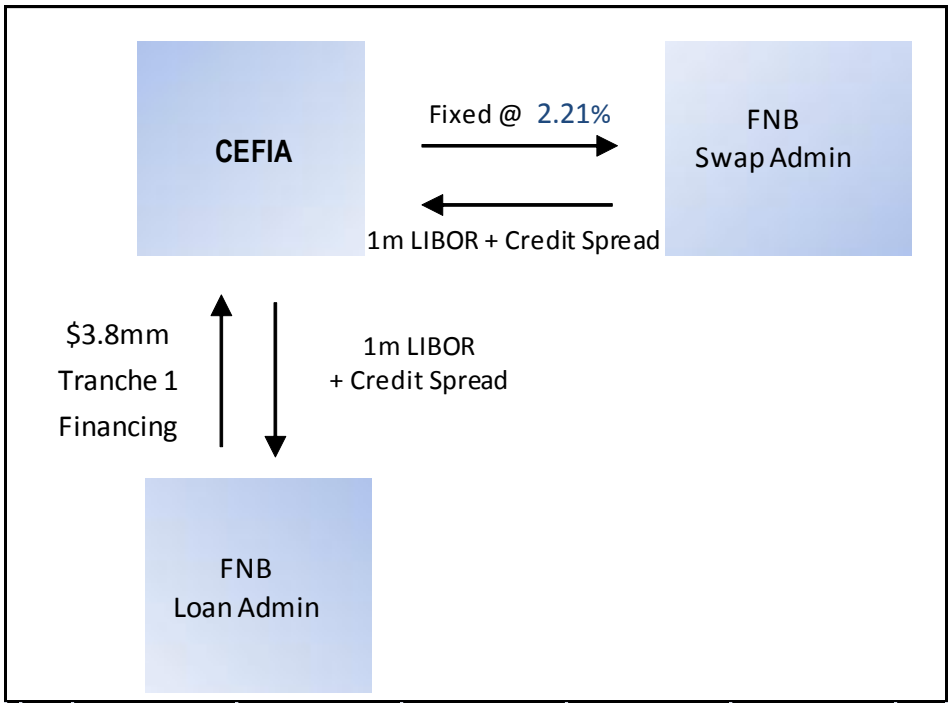
	11 yrs	10 yrs	9 yrs	8 yrs	7 yrs	6 yrs	5 yrs	4 yrs	3 yrs	2 yrs	1 yr
100 bps	131,130	105,779	83,702	64,399	52,011	37,401	23,092	14,743	8,199	3,521	1,269
50 bps	66,681	53,712	42,441	32,610	26,278	18,872	11,646	7,423	4,122	1,767	636
-50 bps	(71,990)	(55,819)	(43,667)	(33,458)	(26,838)	(19,222)	(11,850)	(7,529)	(4,167)	(1,781)	(637)
-100 bps	(140,996)	(113,354)	(88,805)	(67,789)	(54,252)	(38,804)	(23,907)	(15,165)	(8,379)	(3,575)	(1,276)

Staff views the risks as limited as:

1. Interest rates are historically low, so if there were to be an event that would require the Green Bank to terminate the swap contract (or more likely, a portion of a contract) such termination would likely be at negligible cost; and
2. The likelihood of swap termination is low, given the amortizing nature of the swap (i.e., the value of the contract, tracks the loan balance, which is decreasing over time); and
3. During the first 6 years, when contractual swap balances are amortizing rapidly, our lease and PPA counterparties are not permitted to "buy out" their contracts – so by the time we get to the point where this is permitted (in year 7 and thereafter), we can manage this first by the un-swapped portion of the fund and then (if necessary) by unwinding swap contracts at a point in time when the termination costs are small.

For risk measurement, staff views a 100 basis point drop as being the maximum likely loss as the 10 year Treasury bond at its lowest point since 1962 was only 100 basis points below today's rates (and only briefly). At that level, the swap termination cost for all of the contracts proposed would be between 6 and 7 times the amounts indicated in the table above, or between $900,000 and $1 million. Again, this is not considered likely for the reasons stated above, but is presented to explain to the Board staff's assessment of risk in the transaction.

Capital Flow Diagram (Tranche 1)



CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

CT Solar Lease 2 LLC Board Presentation

August 22nd, 2014

FIRST NIAGARA

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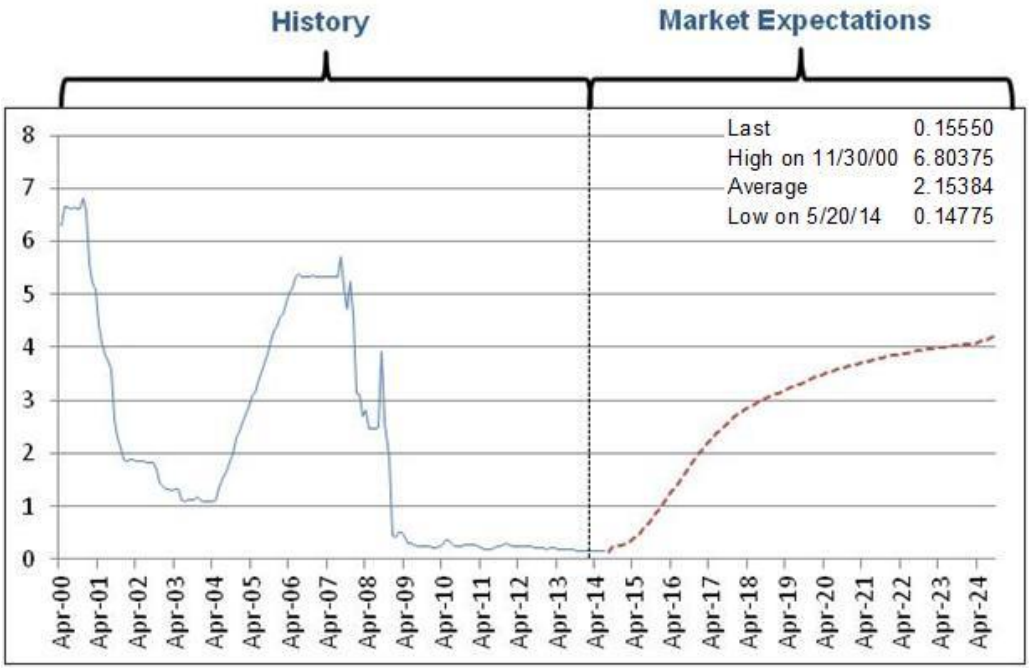
1-month LIBOR and 10-year Treasury yields

Historical Perspective and Expectations of 1-month LIBOR (from 2000)



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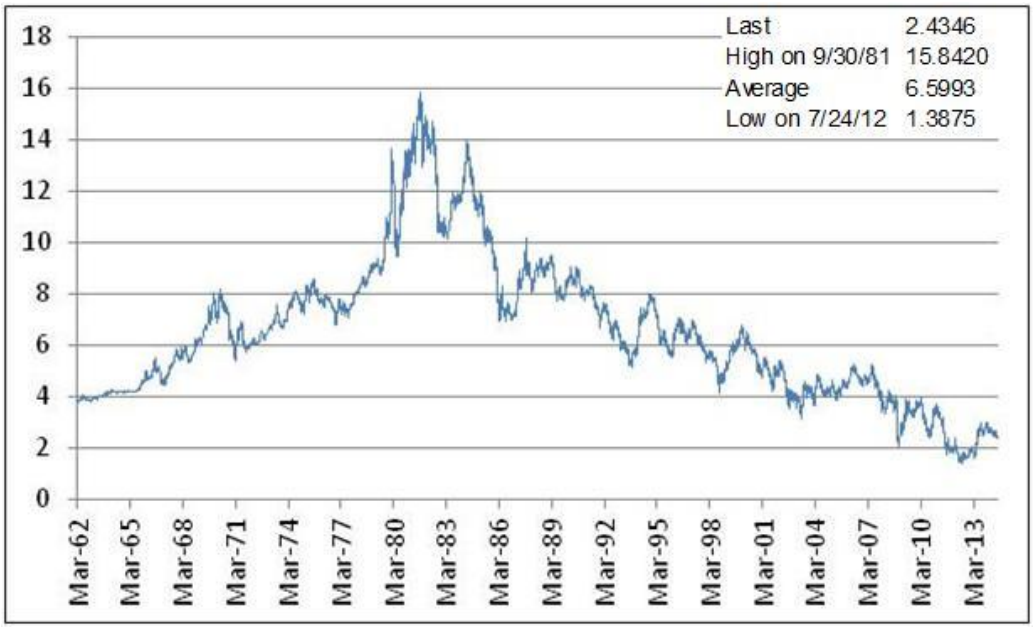
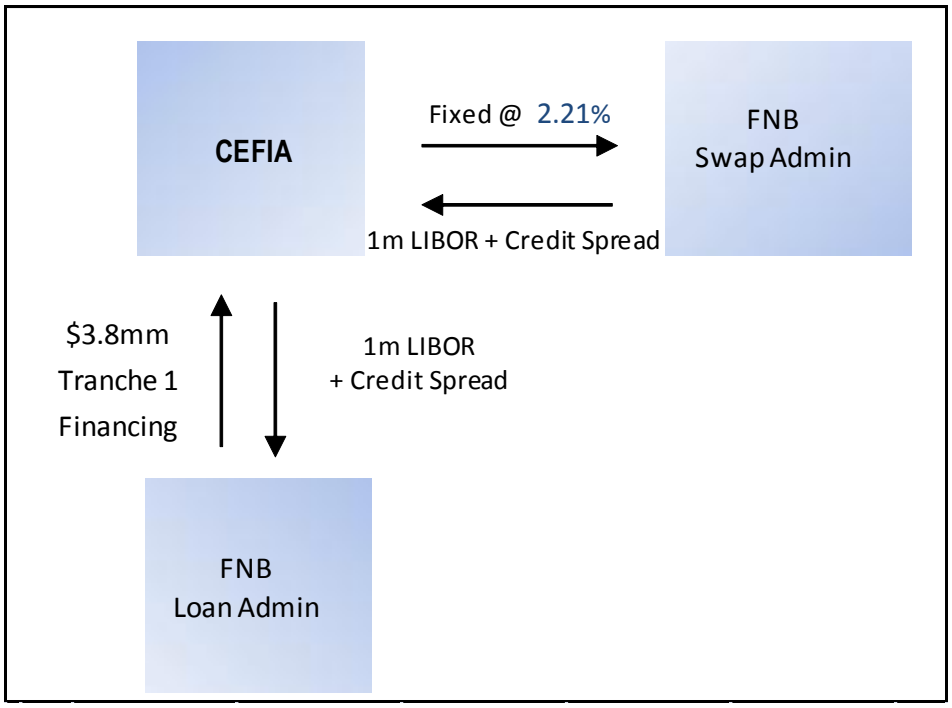


Characteristics of a Swap

- A swap permits the underlying long term financing to be done on a floating rate basis, with the swap serving to manage interest expense over the life of the loan
- By separating the funding from the process of managing the organization's debt servicing costs, it provides for more flexibility and advantageous terms for CEFIA.
- Can employ a "Portfolio Approach" to reduce exposure to increased rates, while benefiting from the current low rate environment.
- Allows CEFIA to fix the rate for the entire term of the loan, or for a shorter period of time.
- CEFIA can terminate all or a portion of the swap without impacting the underlying financing
- If a portion of the financing is left on a floating rate, the opportunity exists to pre-pay part of the loan without adjusting the underlying swap overlay
- In the event of an early termination, allows for a "bilateral" make-whole provision.
- There are no upfront fees associated with a swap transaction.

Cash flows associated with a floating rate loan and a swap



Proposed Interest Rate Swap Terms (1st tranche)

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Maturity Date:	December 15, 2025
Notional Amt:	$2,938,825 (approx 77% of $3.8mm loan amount)
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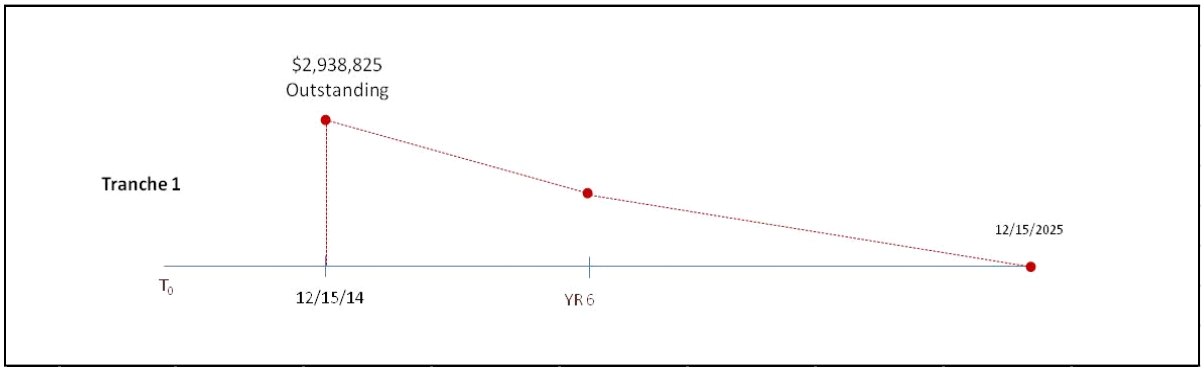
Fixed Rate:	2.21%, subject to market conditions
Day Count:	ACT / 360
Floating Rate:	1 month USD-LIBOR-BBA + Credit Spread
First Payment Date:	January 15, 2015
First Principal Payment:	January 15, 2015

** CEFIA can select any amount to swap, subject to minimum of 75% of the underlying loan.*

Tranche 1 - Projected outstanding swap balance



Risk in a Swap

- Over its life, a swap transaction can be *"in-the-money", or "out-of-the-money"*

- If CEFIA elected to terminate the swap at a time when market rates for the remaining term of the transaction had fallen below the contract rate, it would be *out-of-the-money* and there would be a settlement payment made by CEFIA to the Bank. This risk would be similar to the one faced in a traditional fixed-rate loan. This is not a penalty, but a calculation related to the present value of the interest differential on the remaining cash flows of the transaction.

- Similarly, in a higher rate environment the swap would be *in-the-money* and the Bank would make a payment to CEFIA.

- The grid below provides perspective of the termination value associated with Tranche 1, if market rates for the remaining term were to rise, or fall over the remaining life.

Tranche 1 Yield Maintenance

	11 yrs	10 yrs	9 yrs	8 yrs	7 yrs	6 yrs	5 yrs	4 yrs	3 yrs	2 yrs	1 yr
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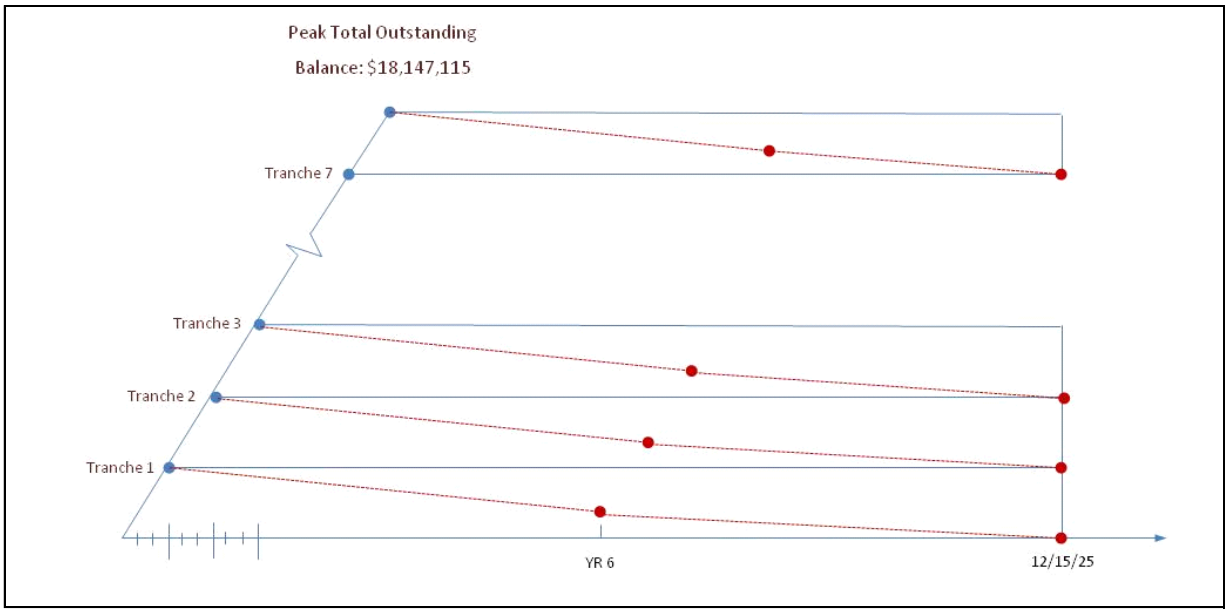
Summary of all the projected swap tranches



Current Yield Curve

Term	Forward	Base Rate
1m LIBOR	Spot	0.15600%
3m LIBOR	Spot	0.23510%
2 Yr Swap	Spot	0.76%
3 Yr Swap	Spot	1.18%
5 Yr Swap	Spot	1.83%
10 Yr Swap	Spot	2.64%
15 Yr Swap	Spot	3.07%

Current Pricing with Anticipated Swap Amounts & Amortizations

Tranche	Draw Date	Amount Swapped	Current Base Rate
Tranche 1	12/15/2014	$2,983,825	2.21%
Tranche 2	1/15/2015	$3,480,188	2.24%
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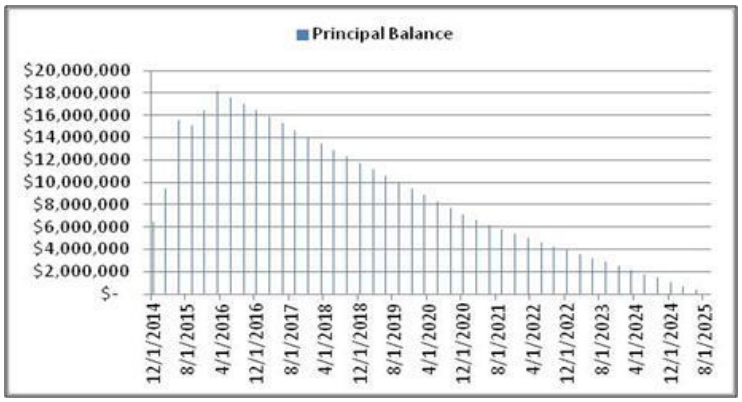
Tranche 6	12/15/2015	$1,800,188	2.68%
Tranche 7	5/15/2016	$2,190,925	2.84%

Aggregate Projected Swap Amortization Schedule



Current Pricing (based on 75% Fixed | 25% Floating mix)

Tranche	Draw Date	Portfolio Approach Current Rate
Tranche 1	12/15/2014	1.70%
Tranche 2	1/15/2015	1.72%
Tranche 3	3/15/2015	1.77%
Tranche 4	7/15/2015	1.89%
Tranche 5	8/15/2015	1.92%
Tranche 6	12/15/2015	2.05%
Tranche 7	5/15/2016	2.17%

Note: the Portfolio Approach calculation above is based on the (Current Base Rate) x (~75%) + (1mL) x (25%), the credit spread is not included

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CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Memo

To: Connecticut Green Bank Board of Directors

From: Bert Hunter, EVP and CIO; Jessica Bailey, Director of Commercial and Industrial Programs; Ben Healey, Senior Manager, Clean Energy Finance

CC: Bryan Garcia, President and CEO; Mackey Dykes, Chief of Staff; Brian Farnen, General Counsel and CLO; George Bellas, VP of Admin and Finance

Date: August 19, 2014

Re: Short-Term Loan of $21,110.08 to C-PACE Borrower – [redacted] Owner of [redacted], Trumbull

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Background

At its October 18, 2013 meeting, the Connecticut Green Bank (the "Green Bank") Board of Directors approved a construction and term loan under the C-PACE program in the amount of $1,001,298 to [redacted], the property owner of [redacted], Trumbull, CT. The loan was for the installation of a 252 kW solar system as well as a variety of efficient lighting upgrades.

The loan closed on November 14, 2013, and was recorded on the land records of the Town of Trumbull as a Benefit Assessment Lien on December 17, 2013, together with a payment schedule laying out an expected repayment start date of April 1, 2014 via the Trumbull property tax collection system.

Unfortunately, the project faced some construction delays, such that the Green Bank did not make its final milestone payment for this project until May 2, 2014 (after the originally planned repayment start date). Shortly thereafter, the Green Bank refiled the Benefit Assessment Lien to align the repayment start date with the next quarterly billing period in Trumbull, or July 1, 2014.

In retrospect, refiling the lien with a repayment start date that early was a mistake, as the project was not fully completed (i.e. the solar system was not energized) until mid-June. Thus, without having accrued almost any energy savings, the property owner was subsequently liable for making initial payments against the loan only a few days after the interconnection occurred. While perfectly legal and consistent with the terms of the executed Finance Agreement, such an outcome was not in the spirit of the C-PACE program, with our goal of delivering cash flow benefits to our borrowers.

Normally, in a situation like this, the Green Bank would have simply extended the interest-only period on the loan for one more tax billing cycle, and refiled the lien with a new payment schedule reflecting a later repayment start date. However, in this case, shortly after we refiled the lien on this property, we sold off the first pool of C-PACE Benefit Assessment Liens to Clean Fund through a bond

securitization structure facilitated by the Public Finance Authority. The lien on [redacted] was included in this pool, meaning we were no longer in a position to amend it ourselves.

Proposed Solution

On a go-forward basis, Green Bank staff intends to ensure that no repayment start dates occur earlier than six months after the actual completion dates of each project, except when requested by a property owner or otherwise necessary to limit accrued interest costs, in order to ensure that property owners benefit from energy savings before they begin paying down the principal on their loans. We have already implemented this approach.

However, in this particular case, given the constraints imposed on us by the fact that we have already sold off the Benefit Assessment Lien for [redacted] and the property at [redacted], we propose extending the borrower a short-term, amortizing loan in the amount of $21,110.08 (equal to the amount due via Town of Trumbull property taxes on July 1, 2014) to cover the property owner's first payment. This proposed loan would be paid in quarterly installments, pay interest at the prime rate (projected to be [redacted]% per annum), and fully amortize by its maturity date of July 1, 2016. This loan would not be an additional mortgage on the property but would instead be an unsecured "signature loan" to the borrower.

Green Bank staff believes this is a reasonable solution to a one-off problem that we do not expect to repeat.

Request

We respectfully request that the Board of Directors consider the proposed transaction and approve Green Bank staff entering into this short-term loan of $21,110.08.

Resolution

WHEREAS, on October 18, 2013 the Connecticut Green Bank (the “Green Bank”) Board of Directors approved a construction and term loan under the C-PACE program in the amount of $1,001,298 to [redacted], the property owner of [redacted], Trumbull, CT;

WHEREAS, the Green Bank and [redacted] entered into a C-PACE Financing Agreement on November 14, 2013 (the “Financing Agreement”) for the installation of a 252 kW solar system and a variety of efficient lighting upgrades (the “Project”);

WHEREAS, the Project faced construction delays and was not fully completed until mid-June, while the first payment was due under the Financing Agreement on July 1, 2014;

WHEREAS, requiring a property owner to begin repayment under a C-PACE Financing Agreement prior to having accrued almost any energy savings is not in the spirit of the C-PACE program, with its goal of delivering cash flow benefits to borrowers; and

WHEREAS, Green Bank seeks to provide a $21,110.08 term loan under the C-PACE program to ISCT Real Estate, LLC, the property owner of [redacted], Trumbull, CT (the "Loan"), to finance the payment of [redacted]s first payment under the Financing Agreement.

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 with terms and conditions consistent with the memorandum submitted to the Board of Directors dated August 19, 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 August 26, 2014; 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.

[redacted]: A C-PACE Project in Newington, CT

Address	[redacted], Newington			
Owner	[redacted]			
Proposed Assessment	$750,000			
Term (*years*)	20			
Term Remaining (*months*)	Pending Construction Completion			
Annual Interest Rate	5.5%			
Annual C-PACE Assessment	$62,297			
Savings-to-Investment Ratio	1.05			
Average Debt-Service Coverage Ratio	[redacted]			
Loan-to-Value Ratio	[redacted]			
Proposed Energy Savings and/or Produced		EE (MMBtu)	RE	Total
	Per year	0	614 (MMBtu)	614 (MMBtu)
	Over loan	0	11,238 (MMBtu)	11,238 (MMBtu)
Estimated Cost Savings	Per year	0	$43,137.30*	$43,137.30*
	Over loan	0	$862,746*	$862,746*
Objective Function	14.99 kBtu per ratepayer dollar at risk			
Location	Town of Newington			
Type of Building	Non-Refrigerated Warehouse			
Year of Build	1954			
Building Size (*total sf*)	53,200			
Served Available Market – within Municipality	0.6%			
Year Acquired by Current Owner	1994			
Appraised Value	[redacted]			
Status of Mortgage Lender Consent	Pending (First Niagara)***			
Proposed Project Description	150 kW rooftop solar PV			
Est. Date of Construction Completion	Pending closing			
Current Status	Pending Board of Directors approval			
Energy Contractors	[redacted]			
Additional Comments	* Excluding tax benefits ** Based on 2013 municipal assessment *** Property Owners have indicated intent to pay off mortgage upon commitment from C-PACE			

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

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Memo

To: The Connecticut Green Bank Board of Directors

From: Jessica Bailey, Director of C&I; Genevieve Sherman, Assistant Director, C&I; Brian Farnen, General Counsel and CLO; Alex Kovtunenko, Junior Counsel, C&I

CC: Bryan Garcia, CEO; Bert Hunter, CIO

Date: August 19, 2014

Re: Extending timeline for closing certain C-PACE transactions

Summary

The Connecticut Green Bank Board of Directors (the "Board") has previously approved and authorized financing for the following six C-PACE projects:

1. Meriden YMCA (approved on 12/20/2013),
2. Quality Inn, Vernon (approved on 12/20/2013),
3. 255 Bank Street, Waterbury (approved on 12/20/2013),
4. 1095 Dayhill Road, Windsor (approved on 12/20/2013),
5. Brookfield YMCA (approved on 4/25/2014), and
6. 1200 High Ridge Road, Stamford (approved on 4/25/2014).

Each financing agreement was authorized to be consistent with the terms, conditions, and memorandums submitted to the Board and made *no later than 90 days* from the date of Board approval.

Due to delays in fulfilling pre-closing requirements for the transactions listed above, the C-PACE program staff requests more time to close these transactions and execute the financing agreements. Since some of these projects were approved in December of 2013, the staff requests 360 days, from the original date of Board approval, to execute these transactions. Going forward the Connecticut Green Bank staff will request 120 days (instead of 90) to close and execute C-PACE transactions. This will allow for more time to fulfill all pre-closing requirements without requesting frequent time extensions from the Board.

Resolutions

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

WHEREAS, pursuant to the C-PACE program the Green Bank Board of Directors (the "Board") has approved and authorized the President of the Connecticut Green Bank to execute financing agreements for the following six projects: Meriden YMCA (approved on 12/20/2013), Quality Inn, Vernon (approved on 12/20/2013), 255 Bank Street, Waterbury (approved 12/20/2013), 1095 Dayhill Road, Windsor (approved 12/20/2013), Brookfield YMCA (approved 4/25/2014), and 1200 High Ridge Road, Stamford (approved 4/25/2014) (collectively, the "Finance Agreements");

WHEREAS, the Finance Agreements were authorized to be consistent with the terms, conditions, and memorandums submitted to the Board and *shall be executed no later than 90 days from the date of Board approval*; and

WHEREAS, due to delays in fulfilling pre-closing requirements for the C-PACE transactions listed above the Green Bank will need more time to execute the Finance Agreements.

NOW, therefore be it:

RESOLVED, that the Board extends authorization of the Finance Agreements to no later than 360 days from the date of the original approval and consistent in every other manner with the original Board authorization for each Finance Agreement.

Submitted by: Bryan Garcia, President and CEO, Bert Hunter, EVP and CIO, Jessica Bailey, Director of Commercial and Industrial Programs, Brian Farnen, General Counsel and CLO

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CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Memo

To: Board of Directors of the Connecticut Green Bank

From: Bryan Garcia (President and CEO), Mackey Dykes (Chief-of-Staff), Kerry O'Neill (Director of Residential Programs), Jessica Bailey (Director of Commercial and Industrial Programs), and Dale Hedman (Director of Statutory and Infrastructure Programs),

Cc Brian Farnen (General Counsel and Chief Legal Officer)

Date: August 19, 2014

Re: Recurring Professional Services Agreement

As the Connecticut Green Bank ("Green Bank") has developed its programs over the last three years, it has formed partnerships with outside vendors to provide key services to those programs. The fiscal year 2015 budget included funds for these key vendors to continue those services. Staff is requesting authority to extend the professional services agreements (PSAs) currently in place with vendors for the remainder of fiscal year 2015 with an amount not to exceed the approved budget line item.

SRS

FY15 Budget: $845,000

To assist Green Bank in administering the C-PACE program, we released a competitive RFQ to qualified firms on September 24, 2012. Through that competitive solicitation, Buonicore Partners, now Sustainable Real Estate Solutions, Inc. (SRS) was selected as our technical administrator. Since that time, they have worked closely with Green Bank to, among other things, work with contractors to submit applications, perform technical reviews of C-PACE applications to ensure compliance with the C-PACE statute requiring that the energy savings exceed the investment, and monitor energy performance of projects over time. They have built a data management platform for Green Bank that tracks each of the projects financed through C-PACE. The budget approved by the board anticipated a continued role for SRS and a budget allocation of $800,000, plus $20,000 in project inspections post completion, and $25,000 for technology support costs to upgrade the data management platform. As such, staff is requesting up to $845,000 for SRS to continue core programmatic support to the C-PACE program.

Locus Energy

FY15 Budget: $120,000

Locus is the residential and commercial solar PV system monitoring platform, system analysis tool and database. The monitoring platform provides real-time production data which Green Bank uses to calculate generation and incentive payments as well as REC production. Locus was selected through a competitive RFP in 2012.

Clean Power Research (PowerClerk)

FY15 Budget: $170,000

Clean Power Research is the provider of PowerClerk, the database and work management system used to process applications and calculate incentives for Green Bank's residential and commercial solar PV and residential solar hot water programs. The Residential Solar Investment Program (RSIP) relies on PowerClerk as its work management system, taking in applications from installers and managing them through system completion. Green Bank has used this platform since 2006.

MatchDrive

FY15 Budget: $1,299,600

MatchDrive is a marketing services company based out of Norwalk. They were selected for fiscal year 2013 as Green Bank's marketing partner after an RFP run the previous year. They assisted with the launch of three products in the residential sector, Smart-E, the CT Solar Lease and the CT Solar Loan, providing collateral, web development and customer acquisition campaigns including online advertising/paid search and print media. For the commercial and industrial sector, MatchDrive has provided web development support, online advertising/paid search, and launched the PACESetters campaign, including cast studies and paid media, to raise awareness of C-PACE and the benefits it has brought to selected building owners.

Smartpower

FY15 Budget: $650,000 ($500,000 for Solarize CT and $150,000 for Energize Norwich and similar campaigns)

SmartPower, the nation's leading non-profit marketing firm dedicated to promoting renewable energy and energy efficiency, was chosen to provide marketing, education and outreach services for the Solarize Connecticut campaign in May 2012. The partnership was a strategic selection based on various factors including their expertise in marketing solar, prior success with clean energy programs administered by Green Bank or its predecessor and ability to leverage private funding from philanthropic foundations. SmartPower also was selected through a competitive RFQ to provide miscellaneous marketing services. The PSA was renewed for year two of Solarize and, simultaneously, SmartPower, along with Yale University, New York University and Green Bank, were awarded a grant from the U.S. Department of Energy (DOE) under its Solar Energy Evolution and Diffusion Studies (SEEDS) program. This DOE grant enabled Green Bank to test variations of the Solarize program in numerous municipalities. Similarly, SmartPower was selected in June 2013 to adapt the Solarize model to encourage fuel conversions and energy efficiency upgrades using the Smart-E Loan for the Energize Norwich Campaign. Green Bank wishes to continue these relationships so as to evolve and expand these programs in additional communities.

RESOLUTION

NOW, therefore be it:

RESOLVED, that the Connecticut Green Bank Board of Directors hereby authorizes Green Bank staff to extend the professional services agreements (PSAs) currently in place with:

i. Sustainable Real Estate Solutions, Inc.;
ii. Locus Energy, LLC;
iii. Clean Power Research, LLC;
iv. Marketing Drive, LLC; and
v. SmartPower, Inc.;

for the remainder of fiscal year 2015 with the amounts of each PSA not to exceed the applicable approved budget line item; 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 execute these extensions.