





Accessing Secondary Markets as a Capital Source for Energy Efficiency Finance Programs

Program Design Considerations for Policymakers and Administrators

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About SEE Action

 Network of 200+ leaders and professionals, led by state and local policymakers, bringing energy efficiency to scale

- Support on energy efficiency policy and program decision making for:
 - Utility regulators, utilities and consumer advocates
 - Legislators, governors, mayors, county officials
 - Air and energy office directors, and others
- Offers:
 - Guidance Documents
 - Trainings
 - Peer-to-peer dialogues
 - Technical Assistance
- Facilitated by DOE and EPA





The SEE Action Network is active in the largest areas of challenge and opportunity to advance energy efficiency

Financing Solutions Working Group

Key Barrier

High up-front costs of EE improvements: The first cost of a project may deter investment, either because the resident or business does not have access to capital or they choose to make other higher-priority investments with their available funds.

Focus Areas

- **Improve Data Access**. Improve data collection practices and access to quality data on energy efficiency financing product performance.
- **Improve Program Design**. Help energy efficiency financing program administrators align program strategies with customer needs, and share lessons learned from experiments in energy efficiency financing program design.
- **Support Effective Financing Tools**. Explore whether novel financing tools and capital sources are more effective than conventional ones in addressing the unique barriers of energy efficiency financing.
- Clarify Regulatory Treatment of Financing. Identify how state public utility commissions are treating financing initiatives under the regulatory framework, share successful approaches.



Financing Solutions Working Group

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	9
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ENERGY EFFICIENCY FINANCING

Financing is one of several linked strategies to drive and enable customer demand for energy efficiency. Financing alone does not lead to energy savings, but it may be an effective tool for helping customers overcome the high up-front costs of a range of energy efficiency investments.



Guidance Documents from the Network



Accessing Secondary
Markets as a Capital Source
for Energy Efficiency
Finance Programs: Program
Design Considerations for
Policymakers and
Administrators

Efficient access to capital from secondary markets—reselling energy loans to investors to replenish program funds—is being advanced as an important enabler of the energy efficiency industry "at scale."

However, the role that secondary markets can play in bringing energy efficiency to scale is largely untested. Only a handful of secondary market transactions of energy efficiency loan products have been executed to date, and it is too soon to draw robust



Accessing Secondary Markets as a Capital Source for EE Financing Programs

Objectives

- Discuss how secondary markets have been used to date by energy efficiency financing programs and how they could be used in the future;
- Identify program design issues that should be considered by program administrators when contemplating accessing secondary financial markets; and
- Offer guidance and suggestions for program administrators and policymakers when considering how secondary market strategies fit into overall energy efficiency efforts

Audience

- Program administrators, especially those considering secondary market interactions
- Interested stakeholders in the financial and related industries





Definitions

What are secondary markets?

- Any market in which a product is resold after its original sale
- In the EE context: Financial markets where EE loans can be sold to investors, either as single loans or as packages of loans divided into tradable instruments (bonds)

What are EE financing structures?

Traditional Structures

- Existing financing tools that <u>can</u> be used to finance EE (e.g., mortgages, credit cards)
 - Secondary market already exists for these products
- Not the focus on this report; development of "green" versions of traditional structures (e.g., green bonds, green MBSs) are an important issue to track

Specialized Structures

- Tools tailored specifically to EE (e.g., PACE, on bill products)
- Newer strategies, intended to overcome EEspecific barriers (e.g., loan length, transferability)
- Secondary markets for these products are emerging



The Promise of Secondary Markets for EE Finance

What is the promise of a secondary market for specialized EE products?

Greater Capital Supply

Secondary market approaches that are based on underlying cash flows (repayments) of EE loans offer scalability—as long as new loans are originated, loans can be sold onward to investors

Can accommodate very large demand for energy efficiency products and services

Typically, high degree of standardization required for efficient secondary market access (not yet seen in EE)

Lower Capital Cost

May be lower in the long run (compared to current capital supply options) assuming sufficient scale and liquidity

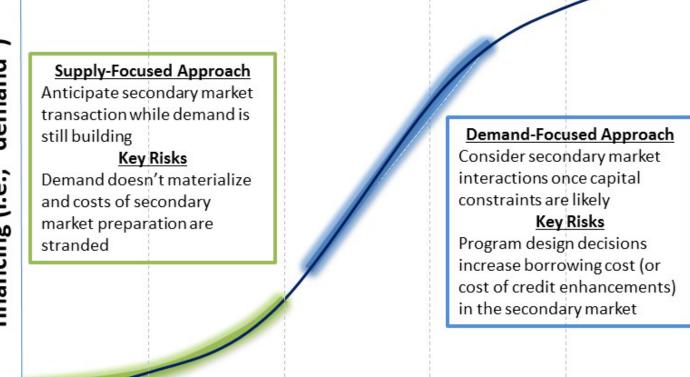
In the short run, secondary market capital's "allin" costs may be higher than alternatives due to transaction costs, liquidity issues, and market unfamiliarity with EE financing products



Balancing Near-Term and Long-Term Objectives

- Over time, secondary markets can help solve challenges of capital supply and cost of capital; program administrators should consider how addressing those challenges factor into overall objectives
- Some may choose to establish products today that are designed to ensure that secondary market capital will be available and wellpriced in the future
- Others may wait until demand builds to point at which capital is constrained, while designing programs to drive demand and meet other objectives

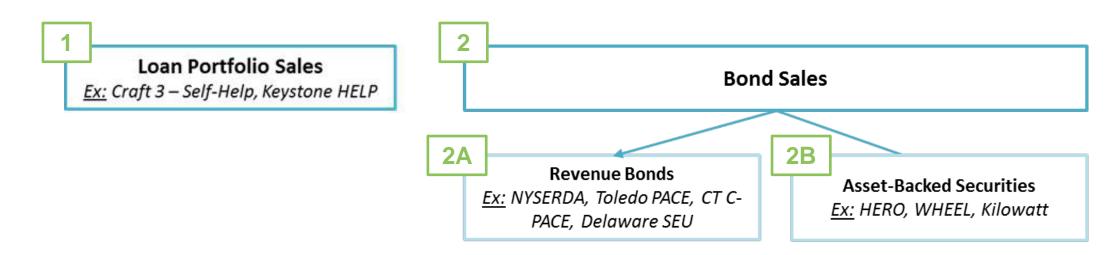
Market penetration of EE financing (i.e., "demand")





Early Secondary Market Transactions of EE Loans

- Focus on transactions that are supported by repayments of underlying EE loans and not by more general obligations (e.g., ratepayer charges, taxes, fees)
 - These approaches offer greater scalability—as long as new loans are originated, secondary products can be offered to investors
- Three primary transaction structures:





Summary of selected secondary market transactions of EE loans

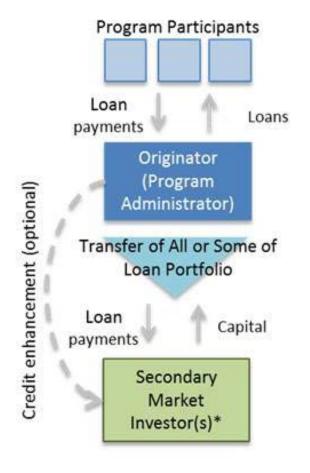
	Craft 3 – Self- Help	Keystone HELP	NYSERDA	Toledo PACE	Connecticut C- PACE	Delaware SEU	HERO PACE I	HERO PACE II	WHEEL (forthcoming)	Kilowatt (forthcoming)
Date	December 2013	January 2013	August 2013	2012-2013	May 2014	July 2011	February 2014	October 2014	TBD	TBD
Size	\$15.7M	\$24M	\$24M	\$16M	\$30M	\$73M	\$104M	\$129M	TBD	TBD
Transaction Type	Portfolio Sale	Portfolio Sale	Revenue Bond (as QECB)	Revenue Bond	Revenue Bond	Revenue Bond	ABS	ABS	ABS	ABS
Seller (Type)	Craft3 (Private)	PA Treasury (Public)	NYSERDA (Public)	Toledo Lucas- County Port Authority (Public)	Public Finance Authority - conduit (Public)	Delaware SEU (Quasi-public)	WRCOG (Quasi- public)	WRCOG and SANBAG (Quasipublic)	WHEEL SPV (Private)	Kilowatt (Private)
Primary Capital Source	Craft 3 funds	Treasury funds	RGGI funds	Municipal revenue bonds	Municipal revenue bonds	ESCO contracts	Limited Obligation Improvement Bonds	Limited Obligation Improvement Bonds	Citibank/Pennsylva nia Treasury line of credit	Citibank line of credit
Market Sector of Underlying Loans	Residential	Residential	Residential	Commercial	Commercial	Public/Instituti onal	Residential	Residential	Residential	Residential
Investor Type	Single purchaser	Consortium	Public Offer	Private Placement	Private Placement	Public Offer	Private Placement	Private Placement	Public Offer	TBD
Rating	n/a	n/a	AAA/Aaa	Unrated	Unrated	AA+	AA	AA	TBD	TBD
Credit Enhancement	Reserve Account, Partial Guarantee	Subordination	Loan Guarantee	Reserve Account	Sale at discount	Appropriations -backing (guarantee)	Over-collateralization (3%), Liquidity Reserve (3% growing to 7%), Excess Spread (4%)	Over-collateralization, Liquidity Reserve (3% growing to 7%), Excess Spread (4%)	Subordination (~20%)	TBD

Transaction Structures: Loan Portfolio Sale

Loan Portfolio Sales

Ex: Craft 3 - Self-Help, Keystone HELP

- Portfolio sales are a straightforward route to secondary market capital
 - The roles of third parties (e.g., lawyers, investment bankers) are usually more limited
 - Typically do not require a credit rating
- May be challenging to find a buyer that is interested in holding a large pool of energy efficiency loans for an extended time period



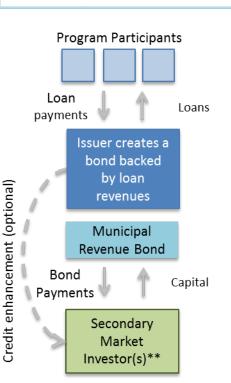


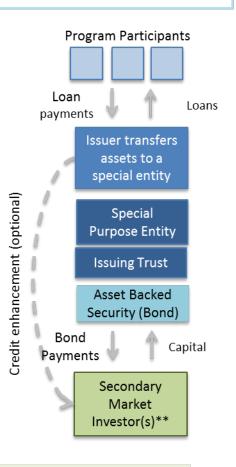
* May be a single purchaser or consortium

Bond Sales

Revenue Bonds

<u>Ex:</u> NYSERDA, Toledo PACE, CT C-PACE, Delaware SEU Asset-Backed Securities <u>Ex:</u> HERO, WHEEL, Kilowatt





If offered to qualified institutional buyers only:

Private Placement

If offered to all investors: Public Offer

Transaction Structures: Bond Sales

Municipal revenue bonds

 Debt issued by a municipality or other public agency; bond payments are guaranteed by designated revenues streams (not general taxes)

Asset-backed securitizations

 Debt offered by a specialized financial entity that is backed by a pool of revenue-generating assets (loans)

Public vs private placement

- Private placements are sales directly to "qualified institutional investors" and need not be registered with the SEC
- Public offers are available to all investors
- Transaction costs of private placements are typically lower than public offers, but cost of capital is higher

Municipal Revenue Bonds versus ABS

Bond Sales

Revenue Bonds

Ex: NYSERDA, Toledo PACE, CT C-PACE. Delaware SEU Asset-Backed Securities Ex: HERO, WHEEL, Kilowatt

- Relative simplicity and lower transaction costs
- Legal and investment banking fees are generally lower (structure generally simpler)
- Rating agency fees are usually lower, and the rating methods are more straightforward

- Asset-backed securitizations arguably provide a pathway to a larger total pool of capital (meet needs of larger number of investors)
- May help further ensure that the investment needs of the energy efficiency industry can be met as demand grows



Investor Perspectives: Addressing Risk

- Fundamentally, all investors will look for a rate of return that corresponds with the riskiness of the asset
- To address this risk/return tradeoff, sellers must be prepared to:
 - 1. Provide information to help investors assess risks of the sale and underlying loans
 - 2. Structure transactions to mitigate risks to investors (including offering credit enhancements)





Investor Perspectives: Addressing Risk

- Provide information to mitigate risk
 - Repayment history, the credit profile of borrowers, and default and charge off rates
 - Ideally, historical performance information available for entire tenure of the loans
- Structure transaction to mitigate risk, through credit enhancements

Loan portfolio sale options	Bond sale options
Sale at discount Sale of subset of all loans Loan loss reserves Guarantees	Required debt service coverage ratios Cash reserve funds Subordination Excess spread Overcollateralization Reserve account Guarantees

Credit enhancements are not without cost and should be considered when deciding whether and when to pursue secondary market capital

Program Design Considerations

Some program design features may be affected by the pursuit of secondary market capital



Interest rates

Potential mismatch between returns that secondary market investors may expect and below-market interest rates



Terms and conditions

Long loan terms may be important for programmatic reasons, but secondary market investors may view longer loan terms as risky



Program Design Considerations



Underwriting criteria

Investors may view expanded or alternative underwriting criteria as an additional source of risk



Security and collection mechanism

Investors will price secured and unsecured loans differently

Program administrators may be interested in testing novel security features, which are not yet well understood by the secondary market but are attracting early interest from investors (esp. PACE)

Bottom Line: Program administrators should be aware of and prepared for possible tradeoffs on program design issues as a result of pursuing secondary market investment



Alternative Strategies for Capital Replenishment

Alternative strategies for achieving capital supply and cost of capital goals include:

Public or ratepayer funds

Direct loans

Bonds not tied to EE loan revenues

- General obligation bonds
- Ratepayer charge-backed bonds (e.g., Hawaii GEMS)

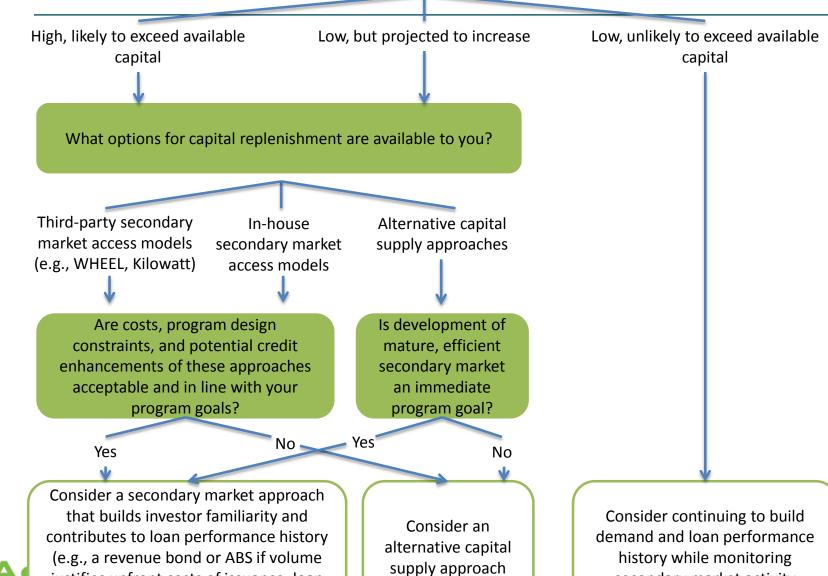
Lender networks

- e.g., Mass HEAT Loans
- In the short run, these alternatives tend to offer lower costs
- In the long run, capital from these sources may be constrained



Decision Support Tool for Program Administrators

What is your current level of demand relative to capital supply?



secondary market activity

justifies upfront costs of issuance, loan

portfolio sale if not)



Summary

- The promise of secondary markets: In the long run, secondary markets could offer a virtually limitless, low-cost capital source
 - However, current volume has not reached scale typical of secondary market transactions; 8 early transactions total just over \$400M
 - Some program administrators choose to focus on secondary market strategies now, building a transaction history so that this capital supply source will be available when needed
 - Others make program design choices primarily to build demand today and meet other objectives



Summary

- Two main types of secondary market mechanisms have been observed in 8
 early transactions: loan portfolio sales and bond sales (including municipal revenue
 bonds and asset-backed securitizations)
 - All early secondary market transactions have built risk mitigation strategies into their transactions, which are not without cost
- Balancing short-term and long-term objectives
 - Program administrators should weigh effects of secondary market orientation on program design choices (e.g., interest rates, security mechanisms, underwriting criteria)
 - As a first step in considering secondary market strategies, programs should examine their projected levels of financing activity, as well as their capital supply options and constraints, to determine when secondary markets may be needed



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Lessons in Accessing Secondary Market for Capital for EE Financing



Agenda Page



- 1. About the Connecticut Green Bank
- 2. The Commercial Sector
- 3. The Residential Sector
- 4. Key Lessons Learned





The Connecticut Green Bank







...<u>transitioning programs away from</u> government-funded grants, rebates, and other subsidies, and towards deploying private capital

...the Green Bank was established in 2011 to develop programs that will <u>leverage private sector capital to create long-term, sustainable financing to support residential, commercial, and industrial sector implementation of energy efficiency and clean energy measures.</u>

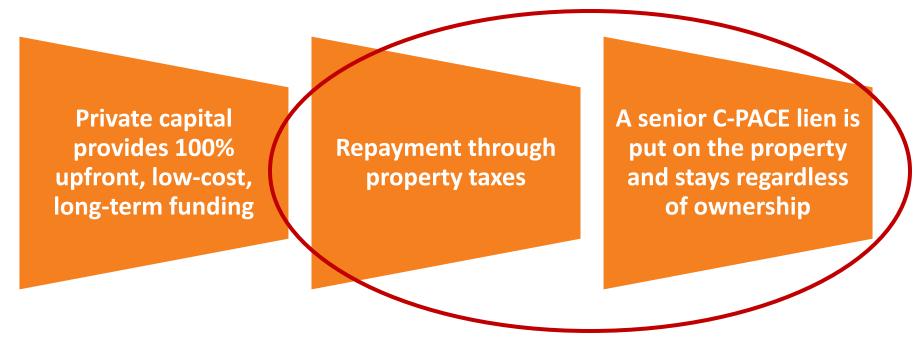


The Commercial Sector

Commercial Property Assessed Clean Energy (C-PACE)



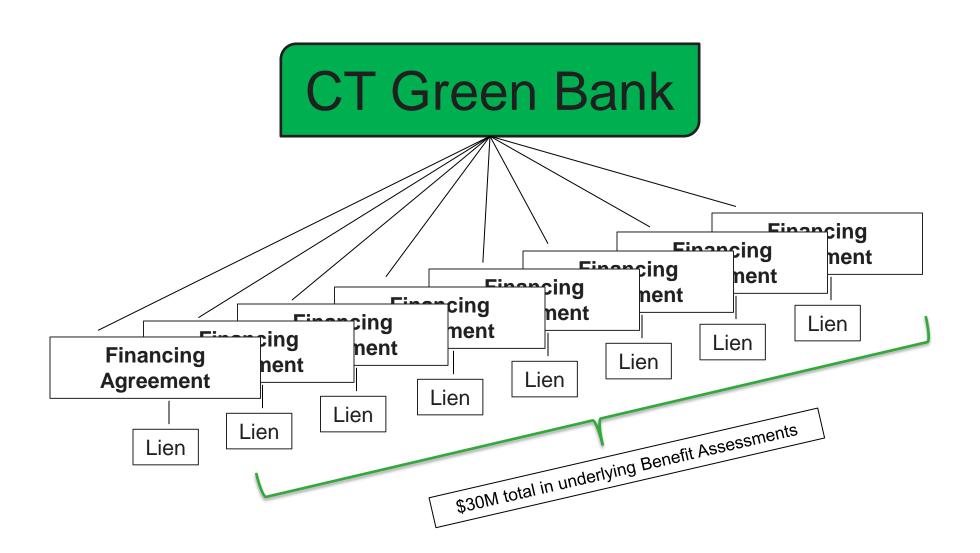
 An innovative financing structure that enables commercial, industrial, and multi-family property owners to access financing for qualified energy upgrades and repay through a benefit assessment on their property tax



Fixed interest rates to customers of 5-6% (10-20 year terms)

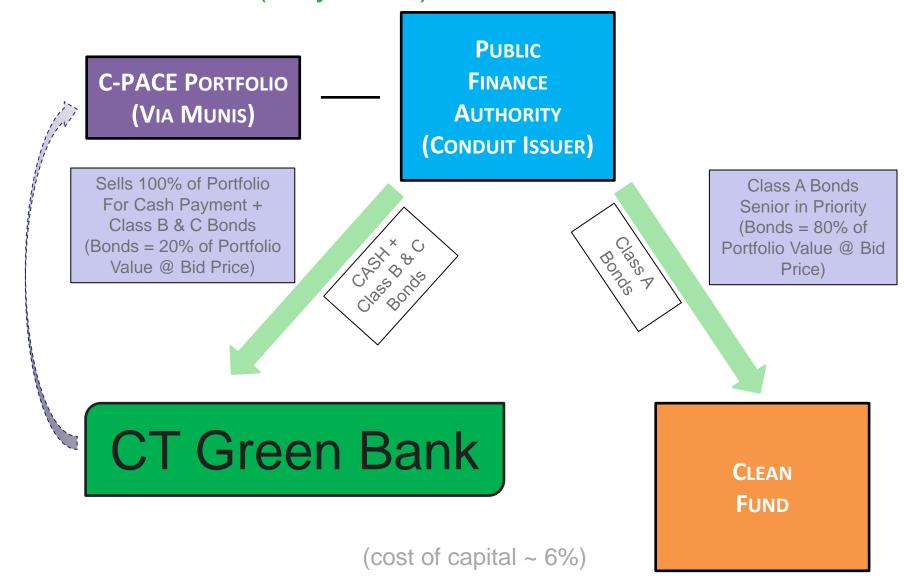
C-PACE: First Securitization Green Bank Originates & Aggregates





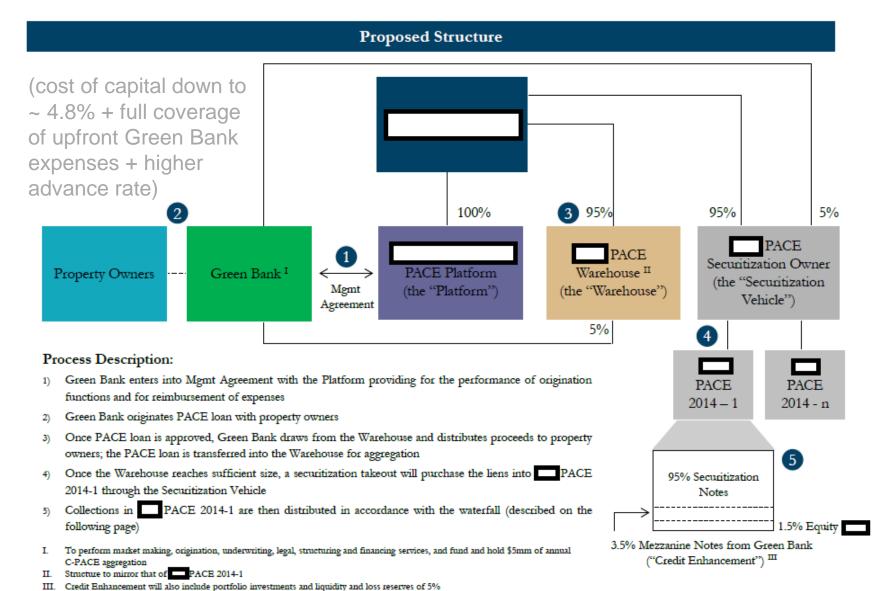
C-PACE: First Securitization Structure of Issuance (May 2014)





C-PACE: Second Private Capital Raise (May GREEN BANK 2015)







Residential EE Financing

CHIF and the CT Energy Efficiency Finance Company



Home Energy Solutions (HES) Residential Financing

- ➤ Originates loans for 1-4 unit owner- and investor-occupied properties for Eversource Energy loans
- ➤ Revolving loan funded using \$12.5 million of CT Energy Efficiency Fund capital
 - ➤ Unsecured loans, 0-9% rate, \$1,000-\$25,000
 - ➤ Underwriting criteria:
 - ➤ Basic loan: 640-679 FICO requires ≤50% DTI, 680+ no DTI, up to 10-year term, optional on-bill payment
 - > 0% insulation-only loan: utility pay history underwrite (no more than four 30-day late payments, no 60-day late payments), 3-year term, on bill required
- ➤ Generally 0.01%+/- delinquency, one loan charge off to date
 - ➤On bill payment through Eversource roughly 50% of pool by loan volume

Composition of HES Loans







As of Jan 31, 2015				
Aggregate Original Loan Amount	\$13,574,855.54			
Aggregate Remaining Principal Balance	\$11,694,558.70			
Number of Funded Loans	1,807			
Average Original Principal Balance	\$7,512.37			
Average Remaining Principal Balance	\$6,471.81			
Average Interest Rate	3.37%			
Interest Rate Range	0.00% to 9.25%			
Average Original Term (months)	76.4			
Average Remaining Term (months)	63.6			
Original Term Range	36 to 144 months			
Average FICO Score	740			
Range of FICO Scores	584 to 829			
Average DTI	39.4%			

FICO Score	Original Loan	% of Total\$ (Reported)	<u>Avg.</u> Original	<u>Count</u>
575-599	\$16,280.00	0.1%	\$8,140.00	2
600-624	\$12,087.13	0.1%	\$2,987.13	2
625-649	\$209,340.04	1.8%	\$9,925.42	21
650-674	\$595,862.39	5.3%	\$10,182.74	59
675-699	\$1,550,294.28	13.7%	\$11,506.47	134
700-724	\$1,840,134.04	16.3%	\$11,266.53	154
725-749	\$1,767,267.51	15.6%	\$11,791.65	153
750-774	\$2,166,433.53	19.1%	\$11,285.17	191
775-799	\$2,095,305.35	18.5%	\$11,578.74	178
800-824	\$1,018,037.53	9.0%	\$11,288.98	88
825-849	\$48,522.76	0.4%	\$12,800.00	3
Total Reported	\$11,319,564.56	83.4%	\$11,491.94	985
Total Unreported	\$2,255,290.98	16.6%	\$2,743.66	822
Grand Total	\$13,574,855.54	100.0%	\$7,512.37	1807

Interest Rate	Original Loan	% of Total\$	<u>Avg.</u> Original	Count
0.00%	\$1,912,702.84	14.1%	\$2,285.19	837
2.99%	\$7,823,379.02	57.6%	\$13,582.26	576
4.49%	\$903,174.45	6.7%	\$8,064.06	112
4.99%	\$1,511,291.58	11.1%	\$9,750.27	155
5.99%	\$1,082,555.48	8.0%	\$11,160.37	97
6.99%	\$238,945.20	1.8%	\$13,274.73	18
9.25%	\$102,806.97	0.8%	\$8,567.25	12
Total	\$13,574,855.54	100.0%	\$7,512.37	1807

Proposed Capitalization Structure



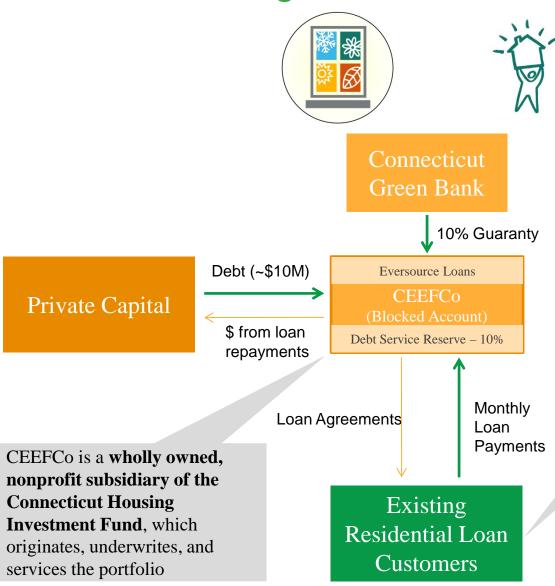




- Existing portfolio of \$12,500,000 with 1,850+ loans (projected as of 3/1/15)
- Over-collateralization targeted at >80%, or approximately \$10,000,000 facility
- Credit Enhancements:
 - CEEFCo Debt Service Reserve Fund of 10% of outstanding principal fully funded
 - CT Green Bank loan loss reserve 10% of outstanding principal fully funded
- Combined overall coverage >1.4:1.0
- Expected cost of capital < 4%

Cash Flow Diagram





Existing pool of loans as of transaction date used to secure new capital; pool's loan repayments used to pay back collateralized loan obligation



Lessons Learned

Commercial vs. Residential: A Tale of Two Sectors



Residential:

- Well understood, diversified portfolio of credits is critical
- Broad pool of potential capital providers (i.e. banks, credit unions, etc.) willing to play, often with lower cost capital
- Energy savings irrelevant (from an underwriting perspective)

Commercial:

- Each credit requires close underwriting (even with PACE lien!)
- Lumpier portfolio and greater "touch" required can raise cost of capital
- Rapid evolution in sophistication and interest among capital providers

Both:

- Aggregation and scale is key
- Strength of primary market processes (both origination and underwriting) a major focus for private capital providers across the board





Thank you!

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US DOE: Better Buildings Summit
May 27, 2015



Barrier: Upfront Cost

Cisco's iPhone Bill

\$119/ month \$1,428/ year \$28,560/ 20 years



Cisco's Utility Bill

\$129/ month \$1,548/ year \$30,960/ 20 years



We've Solved This Problem Before



WHEEL Overview

 The Warehouse for Energy Efficiency Loans is a turnkey financing platform that provides low-cost capital to homeowners for energy efficiency and water conservation improvements

WHEEL includes:

- Leverage of public capital with private institutional capital
- Multi-state aggregation of loans to capture economies of scale and reduce risk
 - Leading to lower interest rates for borrowers
- Private-sector driven marketing, QA/QC, and contractor oversight
 - Eliminating a state's need to develop and implement its own program
- Job creation and outcome reporting (data & analysis) provided to participating states

WHEEL Partners





















WHEEL Principles: Uniform Underwriting, Qualified Contractors & Qualified Projects

WHEEL delivers the benefits of capital markets and structured financing to the broadest possible population of borrowers via managed contractor networks. A solution for every type of home energy project: from emergency HVAC replacement to comprehensive retrofits with combined solar, water and energy efficiency improvements

Product Credit/Description Qualified Projects Qualified Contractors WHEEL Unsecured personal debt Loan • 640+ FICOs Max DTI: 45% ■ Terms of 3, 5, 7 or 10 years **\$1,000 - \$20,000** Consumer rate: mid single digits* *88% of homeowners don't have a home equity line of credit. Across the country, most homeowners typically pay 13-18% interest to finance home energy and water improvements.

WHEEL: Why It Works

WHEEL meets the market where it is and creates a financial incentive for homeowners to choose the most efficient products rather than the cheapest products

Inside the \$50+ billion/year Home Energy Improvement Market



HVAC **\$18 B**

Reactive Replacement Market



Clothes Washers **\$7 B**



Windows
Doors &
Roofs
\$22 B



Home
Performance &
Solar
\$2.9 B

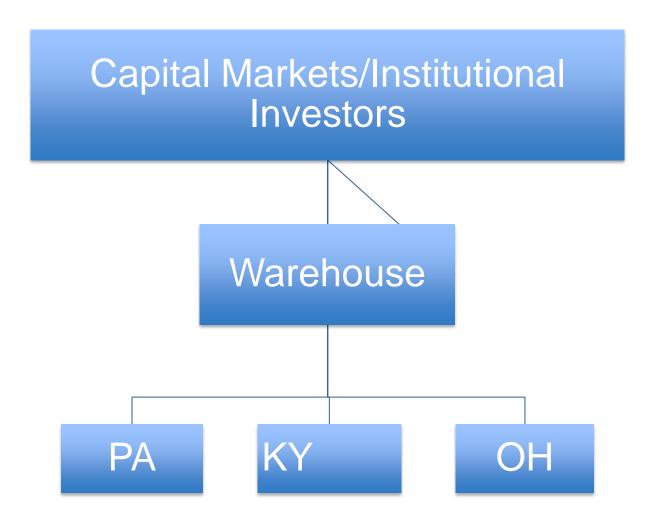
Proactive
Performance
Market

WHEEL: Key Facts

- WHEEL launched in April 2014 with programs in PA and KY
- WHEEL is based on Pennsylvania's Keystone HELP model
 - In 2006, Pennsylvania launched Keystone HELP, a residential energy efficiency financing program
 - Keystone HELP established uniform underwriting criteria, eligible measures and a managed network of contractors
 - So far Keystone HELP has deployed \$100M and benefitted over 13,500+ homeowners
- WHEEL was added to revamped KHC energy improvement financing program
 - KY has funded over \$1.2 million in loans with WHEEL so far
- In May of 2015, WHEEL plans to complete its first capital markets transaction and launch new programs in FL, IN, NY and VA

WHEEL Financing: How it Works

(Start at the bottom)



When loans financed by the Warehouse reach sufficient volume, we intend to issue debt backed by the loans to unaffiliated third party investors. This leads to the recapitalization of the warehouse.

All conforming loans originated in participating states are purchased by the Warehouse. On average, 80% of the purchase capital is provided by Citi and 20% is provided by the state sponsors.

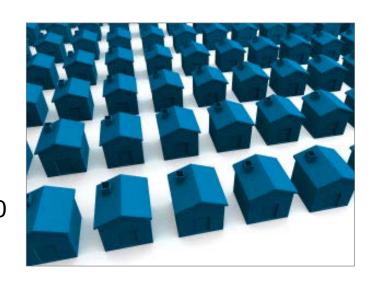
Participating state partners agree to WHEEL standards that have been pre-vetted by ratings agencies and capital providers. Partner states also contribute "sponsor" capital which is leveraged at least 4 to 1.

WHEEL Impacts

WHEEL delivers excellent <u>economic</u> outcomes, including job creation, increased local investment and energy & water savings.

Projected <u>Annual</u> Impacts From Every \$1M of Investment

•	Leveraged Private Capital	\$4 million ¹
•	Total Project Funding	\$5 million
•	Total Projects (@\$8K each)	625
•	Jobs Created ²	100
•	HHs Electricity Savings (MWHs) ³	750
•	HHs Nat Gas Savings (therms)	40,000
•	HHs Water savings (gls)	10,000,00
•	CO2 reductions (MTons)	700



¹ The basic WHEEL financing structure provides five to one leverage.

² http://aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf

³ Savings estimates for electricity, natural gas, and water are on an annual basis

Thank You

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