



PACE: Innovations in Energy Efficiency Financing

Eleni Pelican
U.S. DOE



Milwaukee's Open-Market PACE Program
A national implementation model

Finding a Competitive Advantage

- Energy efficiency makes buildings and cities more competitive
- Investing in energy efficiency means:
 - Lower operating costs
 - Better occupant experience
 - Local jobs
 - Better local air quality
 - Better tenant experience
- Cities need economic development tools to support existing buildings, not just new development.
- Reallocate budgets currently wasted on excess energy into building improvements that improve living conditions

“If you don’t have a competitive advantage, don’t compete.”

Jack Welch
Well known CEO

PACE Financing

Property Assess Clean Energy (PACE) Financing provides innovative financing to make energy efficiency, water efficiency, and clean energy projects like:

- New boilers
- New chillers
- Advanced building controls
- Solar Energy
- Lighting
- Other permanently fixed energy-saving improvements

PACE FINANCING

PACE makes private capital available to Milwaukee building owners via public/private partnership

- Financing provided by private investors
- Payments for the improvements are collected from participating buildings by the City through a voluntarily-assumed municipal special charge
- **Special Charge is collected on the annual property tax bill**



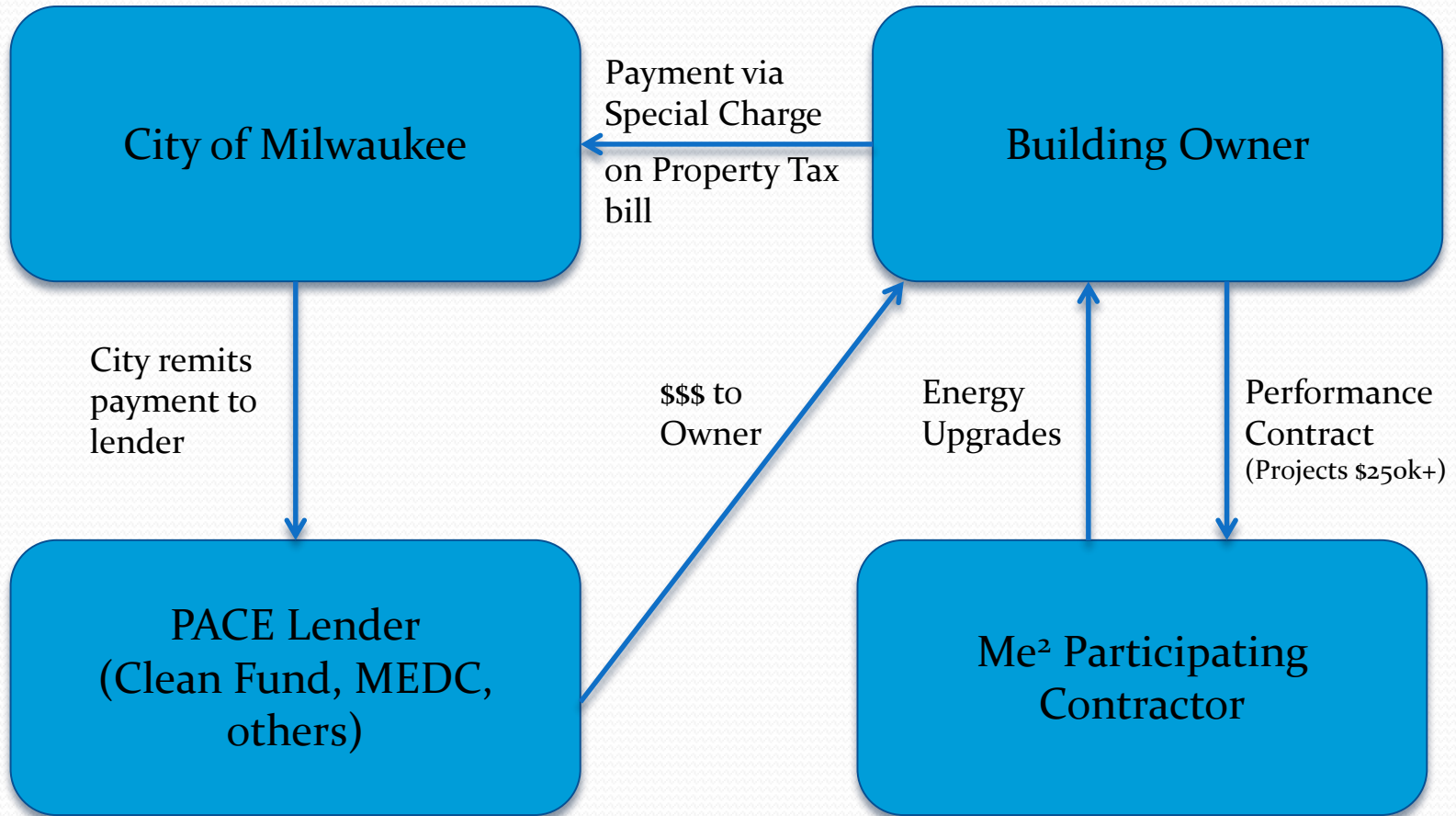
Benefits to Building Owner, Tenants, and the Community

PACE in Milwaukee

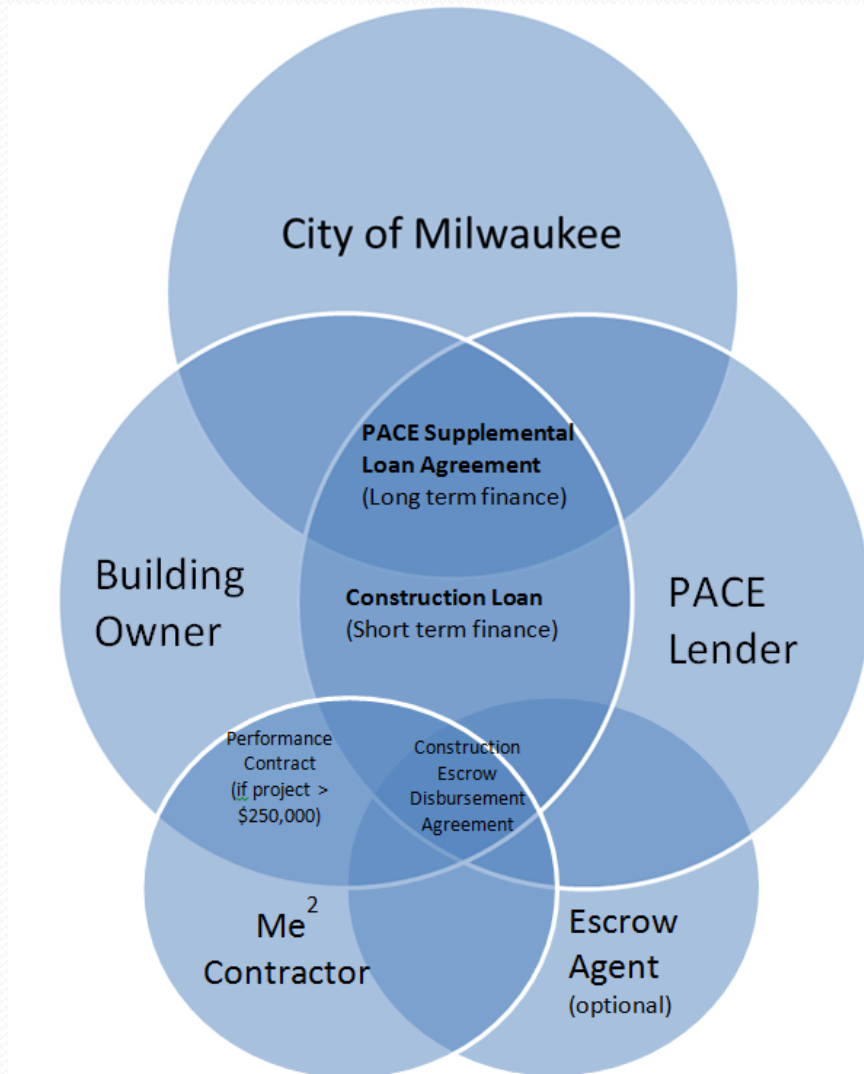
- **State of Wisconsin Enabling Statute:** 66.0627(8)
- **City of Milwaukee Ordinance:** 304.26.5
- **Administrative Rules:** Program Manual including the PACE Supplemental Agreement Template in Appendix C.

Complete information at SmartEnergyPays.com/businesses

PACE Financing: “Square Dance”



Milwaukee PACE legal framework



- Traditional bank debt finance

- Financed by debt
- Tied to building owner
- 3-7 year terms
- Cash flow negative
- Payback required, 3-6 years
- Upgrade over 5+ years
- Capital expense

- PACE Financing

- Financed special charge on property tax bill
- Runs with the land
- Up to 20 year terms
- Cash flow positive
- Payback, life of equipment
- Upgrade whole building at once
- Operating expense
(check with your owner's accounting)
- Pass through to tenants
(check your lease terms)
- Equity side of capital stack

Example Project

- \$500,000 project (HVAC and lighting)
- Guaranteed annual savings: \$42,000 (12 year payback)
- Owner may want to sell property in 8 years
- Tenants pay energy bills for their spaces, and pro-rated property taxes

Would you do this project with traditional financing?

With PACE?

Eligibility

- Existing commercial building located in the City of Milwaukee
- No property tax delinquencies in the past three years
- Min project size: \$150,000, based on current lenders
- Max PACE project size: 20% of Property Value
- Must use Participating Me2 Commercial Contractor → *support of local jobs*
- Energy Savings Performance contract for projects \$250,000+; SIR ≥1
- Existing Lien Holder Consent
- Participate in the Better Buildings Challenge

Application

1. Visit SmartEnergyPays.com for program information and list of Participating Contractors
2. Submit PACE Interest Form
3. Develop your project with Participating Me² Contractor
4. Submit PACE Application with defined project
5. Get lien holder(s) acknowledgement/consent
6. Close financing with City and Lender

PACE FINANCING

Case Study: University Club

- Lender: Milwaukee Economic Development Corp.
- PACE Equity was project developer, using 5 installation contractors
- Scope: HVAC, Windows, Lighting, Steam Traps
- Project Size \$662,000
- Amortization: 18 years
- Annual payment: \$62,000
- Annual Guaranteed Savings (Year 1): \$56,000
- Average Annual Savings: \$75,000



Attracting Capital Providers

- Need to clarify which companies were willing and able to provide capital for PACE in Milwaukee
- Elements of a Milwaukee PACE provider:
 - Low-cost
 - Provide construction finance
 - Truly understand our local ordinances and policies
 - Quick turnaround of documents
 - Lender consent
- Issued RFQ for Capital Providers
 - *PACE Equity*
 - *Blue Path Finance*
 - *Clean Fund*
- Other lenders can join at any time

Tips for Implementing

- Work with private-sector constituency for PACE
- Biggest market for PACE may be in whole building redevelopments
- Program complexity evolves from statute to ordinance to program manual
- Milwaukee's ordinance reflects interest in eliminating risk from local property taxpayers
- Think through and explain non-payment contingencies
- Have capital providers lined up before you market the program
- Manage the lawyers
- Keep it simple and flexible, as best you can



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Commercial Property Assessed Clean Energy – the CT Story

Lessons from the first two years

May 28, 2015



Agenda Page



1. About the Connecticut Green Bank
2. The Basics – How it Works
3. Financing C-PACE in Connecticut
4. Lessons and Challenges



The Connecticut Green Bank

Connecticut Green Bank Challenge: Mobilize Private Capital Investment in Clean Energy



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

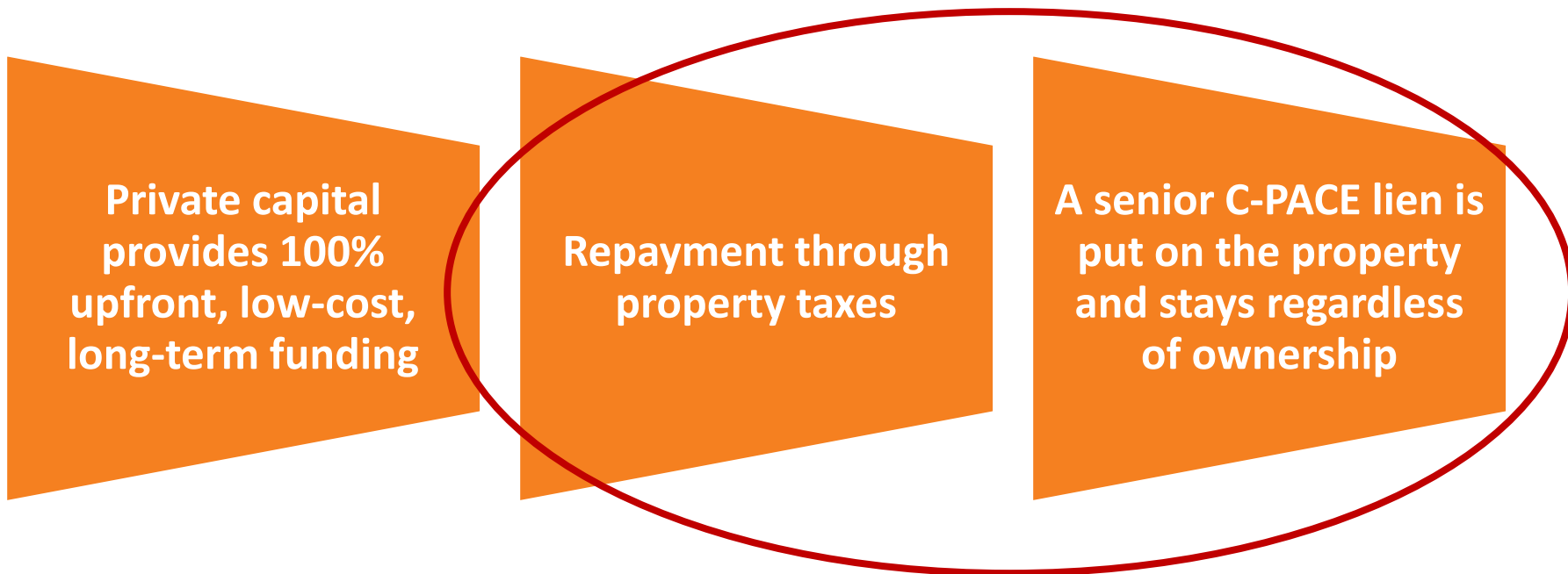
...the Green Bank was established in 2011 to develop programs that will leverage private sector capital to create long-term, sustainable financing to support residential, commercial, and industrial sector implementation of energy efficiency and clean energy measures.

The Basics – How it Works

What is C-PACE?



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



- Current fixed rates to customers = 5-6% (for 10-20 year terms)

Key Statutory Provisions



- Commercial, industrial & multifamily properties
- Requires the **consent** of the existing mortgage lender
- Requires **SIR>1**; permanently affixed
- Enables municipalities to opt-in
- Enables CT Green Bank to administer a **statewide program**

How Owners Access C-PACE

THE C-PACE PROCESS

energize CT | cpace

1 GETTING STARTED



Building owner works with contractor to develop a project plan.



Owner submits project plan and financing application to C-PACE.



Application is reviewed.

2 GETTING PROJECT DONE



C-PACE contacts local municipality and a lien is placed on property.



C-PACE loan is closed and funding goes to building owner.



Project begins.

3 PAYING IT OFF



Owner begins saving money on their energy bills



Owner repays C-PACE loan through a benefit assessment charge on their municipal tax bill.



Through improved property, owner enjoys increased cash flow and lower operating costs.

Financing C-PACE in Connecticut

Qualified Capital Providers (QCPs)



Deutsche Bank
USA



PACEConnecticut.



CLEAN:FUND



Renew Energy Partners
A Smart Approach to Making Energy Efficient Upgrades

Brookfield

Bank of America



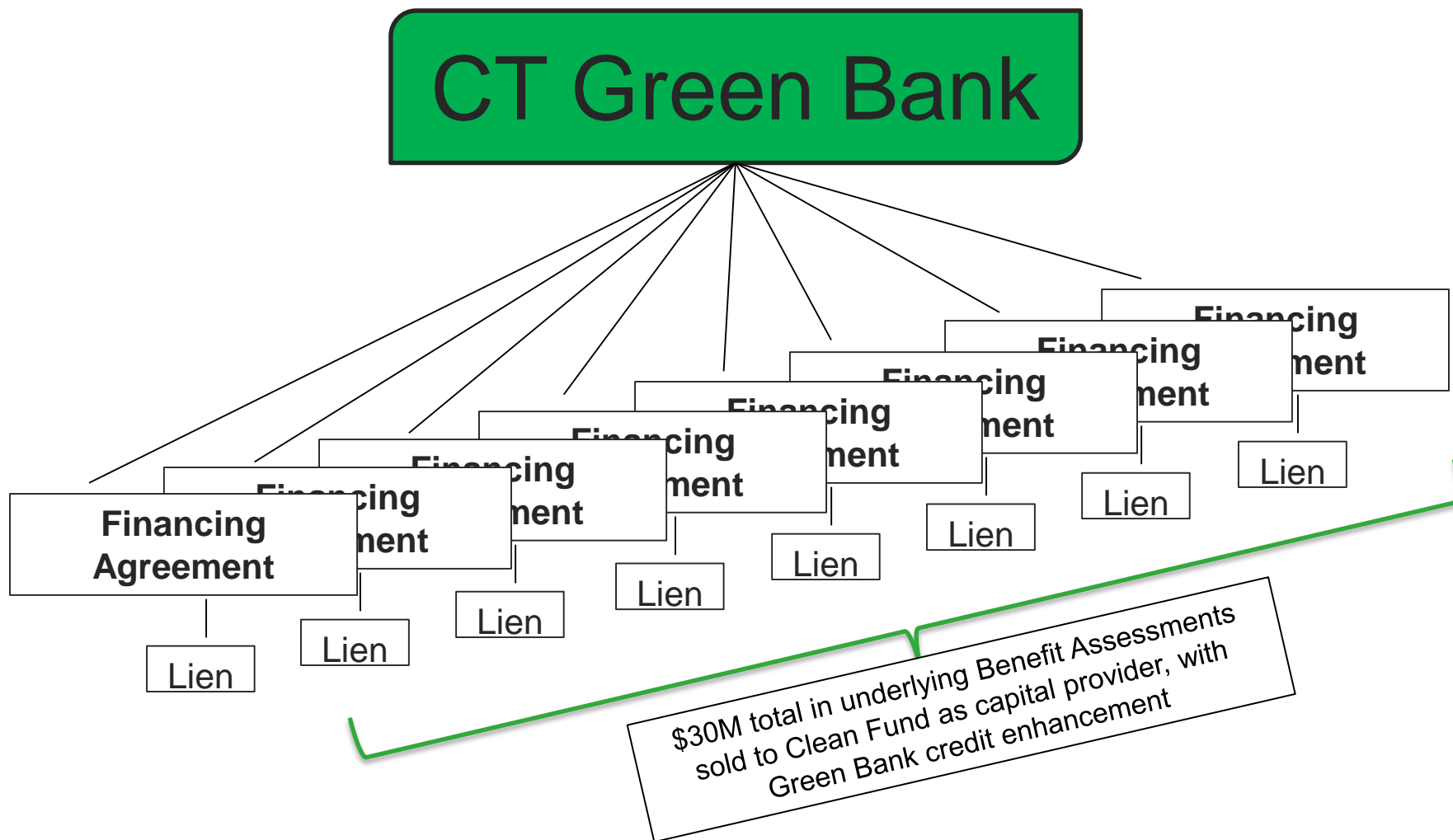
structured finance ASSOCIATES, LLC

C-PACE: First Securitization

Green Bank Originates & Aggregates



CT Green Bank



Lessons and Challenges

Key Success Factors



■ Legislative framework

- Financing product works (senior lien)
- SIR test ensures positive cash flow for owner and elicits consent from mortgage lender (30+ distinct institutions have provided consent)
- Green Bank as administrator – good housekeeping stamp of approval
- Statewide program – consistency for contractors, owners, lenders

■ Programmatic

- Contractor training and outreach to drive deal flow
- Coordination with other utility programs to leverage “free money”
- Momentum/word of mouth around the state (boot leather)

■ Warehouse

- On-demand capital
- Standard, transparent rates
- Low fees
- Clear process from application to cash

Potential Challenges



- Volume considerations
- Limited capacity to meet demands of growing market (e.g. underwriting)
- Green Bank not structured efficiently to take on growth (overhead)
- Political risks associated with public nature of Green Bank
- Quasi-state processes (PSAs, state contracting requirements, staff recruitment and retention)
- Replicability around the country

Approach to Growth



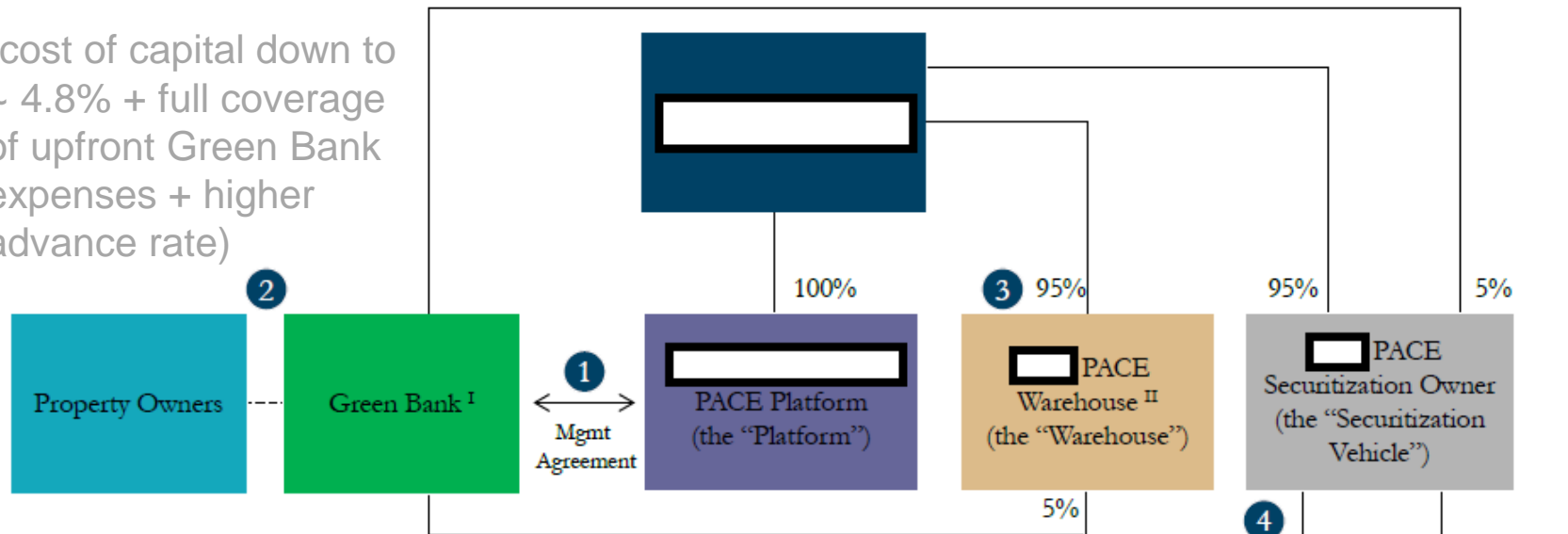
- Two approaches:
 - First (primary play) – enable the creation of an external capital facility to support Green Bank origination
 - Do so in a way that preserves what Green Bank does well (making sure public benefit is served) while allowing scale to happen more cost effectively
 - Need margin within the facility to allow for self-sustainability and growth of origination efforts
 - Provide Green Bank participation as required to keep rates consistent (staying < 6%)
 - Second (future-oriented play) – provide “standard offer” to market to encourage competitive private-market origination

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



Proposed Structure

(cost of capital down to ~ 4.8% + full coverage of upfront Green Bank expenses + higher advance rate)



Process Description:

- 1) Green Bank enters into Mgmt Agreement with the Platform providing for the performance of origination functions and for reimbursement of expenses
- 2) Green Bank originates PACE loan with property owners
- 3) Once PACE loan is approved, Green Bank draws from the Warehouse and distributes proceeds to property owners; the PACE loan is transferred into the Warehouse for aggregation
- 4) Once the Warehouse reaches sufficient size, a securitization takeout will purchase the liens into PACE 2014-1 through the Securitization Vehicle
- 5) Collections in PACE 2014-1 are then distributed in accordance with the waterfall (described on the following page)

I. To perform market making, origination, underwriting, legal, structuring and financing services, and fund and hold \$5mm of annual C-PACE aggregation

II. Structure to mirror that of PACE 2014-1

III. Credit Enhancement will also include portfolio investments and liquidity and loss reserves of 5%

3.5% Mezzanine Notes from Green Bank ("Credit Enhancement")^{III}

C-PACE: Standard Offer



http://www.c-pace.com/about-c-pace

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APPLY NOW BUILDING OWNERS MUNICIPALITIES CONTRACTORS PROJECTS **ABOUT C-PACE** PACESETTERS MEDIA CONTACT

Home » About C-Pace

About C-Pace

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

LOCAL PACE PROGRAM

HAVE A PROJECT?
▶ APPLY NOW

[Need a Contractor – View Directory](#)

[Become a Qualified Capital Provider](#)

[RFQ for Appraisers for Clean Energy on Commercial Buildings \(CPACE Projects\)](#)

[Exhibit A - RFQ Appraiser Experience Checklist](#)

[Exhibit B - C-PACE Program Background](#)

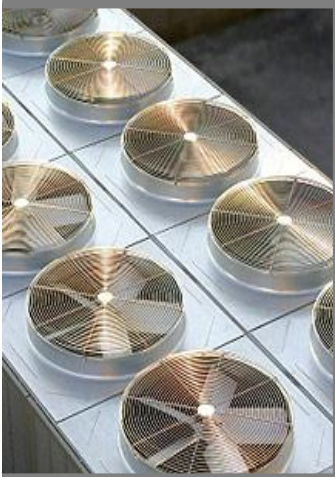
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Thank you!

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HANNON
ARMSTRONG
SUSTAINABLE INFRASTRUCTURE



Better Building Challenge



May 28, 2015

HASI
LISTED
NYSE



Key Program Objectives

- ✓ No out of pocket cost; all project costs financed and paid from guaranteed savings
- ✓ Easily transferred upon asset sale or transfer
- ✓ Improve return on investment and long term asset value
- ✓ Improve efficiencies and reduce operating expenses associated with increasing energy costs
- ✓ Comply with growing Green building codes and legislation
- ✓ Improve brand reputation and reduce environmental impact

Financial Structures Compared



	Property Assessed Clean Energy (PACE)	Customer Financed (Capital Lease)	Energy Service Agreement (ESA)
Credit Evaluation	✓ Lien to Value, Loan to Value, and limited financial review	Financial review of SPE and potential guarantee	Financial review of SPE and potential guarantee
Payment Obligation	✓ Special Assessment as part of Tax Bill	Unconditional	Contingent Upon Savings
Term Length	✓ Up to 20 years	5 - 7 years	5 - 10 years
Beneficiary of Performance Guarantee	✓ Customer/Hannon	✓ Customer	Hannon
Title to ECMs	✓ Customer owned	✓ Customer owned	Hannon owned
Lien on ECMs	✓ Tax Lien	UCC1	UCC1
End of Term	✓ Customer owns free and clear	✓ Customer owns free and clear	Purchased at FMV, renewed, or removal of ECMs
Transfer to new ownership?	✓ Tax lien - stays with property	Assignable to new owner pending credit review	Assignable to new owner pending credit review
Terminable	✓ Yes, with pre-payment and termination schedule	✓ Yes, with pre-payment and termination schedule	No
Off-Balance Sheet?	✓ Potentially (subject to determination by Customer's auditors)	No	✓ Potentially (subject to determination by Customer's auditors)
Project Management Cost	5-10%	5-10%	5-10%
Performance Guarantee Cost	✓ None required	✓ None required	20-30%
Cost of Capital	✓ Least	✓ Low	Most
Total Cost	✓ Least	✓ Moderate	Most

Under all scenarios, financing cost of capital remains below Hilton/Blackstone total cost of capital

Do You Need a Performance Guarantee?

Balancing Investment and Risk Avoidance



Most ECMs Require No Performance Guarantee

ENERGY CONSERVATION MEASURES (ECMS)	SIMPLE PAYBACK PERIOD (YEARS)	EQUIPMENT LIFE EXPECTANCY
Energy Management System & Controls	1 to 4	20
Lighting Upgrade	1 to 2	20
Water Heater Replacement	1 to 4	15
High Efficiency Motors & VFDs	1 to 4	20
Water Conservation Measures	1 to 5	20
Building Insulation - addition	10 to 15	-
Roof Insulation – addition	20 to 30	-
Kitchen Equipment replacement	15 to 20	30
Roof Replacement/Green Roof	20 to 50	20
Windows - replacement	15 to 50	40
Boiler - replacement	8 to 20	35
Chiller - replacement	5 to 12	25
Solar Panel Installation	8 to 15	25
Combined Heat & Power Plant	15 to 20	20



Key Elements

PACE Statute and Ordinances are passed

Property owners voluntarily enter assessment contracts to finance energy improvements

Property owner repays the assessment through tax bill for up to 20 years

Estimated savings exceeds assessment payments creating net positive cash flow

The Steps of PACE Financing

- Application:** Participant fills out an application with Hannon Armstrong & Municipality
- Energy Audit:**
- From approved contractor
 - Results determine which measures to install
 - Cost of audit incorporated into loan
- Cost Estimates:** Participants obtain written "not to exceed" estimates from contractors
- Review of Proposal:** Review of audit and bid information to ensure the proposed measures have a positive savings to investment ratio
- Obtain Funding:**
- Participant obtains funding from Hannon Armstrong
 - Funding can be in paid to escrow account for access by participant
- Notice to Proceed:** Issued to contractors by participant
- Completion of Projects:** Inspection and commission by participant
- Contractor Payment:** Participant, through escrow agent, will directly pay contractor
- Repayment:** Financing repaid via assessments on participant’s tax bill
- Measurement and Verification:** Optional program to measure the project’s performance



- Hotel value based on net operating income (NOI) before retrofit - \$40mm
- Annual savings (increase in free cash flow → increase in NOI) - \$200k
- Average Hotel Capitalization rate 7%
- New hotel value based on NOI - \$43mm (increase of 7.5%)





Project Highlights

- Total PACE Project Size: \$7 million
 - ECMs: Lighting retrofit, HVAC replacement, Chiller replacement, Window tinting, elevator modernization, water conservation (faucets/showers), EV charger installation, engineering, design and project management and other fees)
- Utility Cost Savings, Year 1: \$800,000
- Operations & Maintenance Savings: \$200,000
- Return on Investment: 78%
- Total Project Return on Investment over 20 year term: \$12.5M

Case Study: Hilton Los Angeles/Universal City PACE Lien

Increasing Net Asset Value at No Cost



Excerpted from the appraisal prepared for Deutsche Bank (then current owner) by
Cushman & Wakefield Valuation & Advisory

Market Value as of:

August 21, 2013 – “AS IS”: **\$ 127,800,000, or \$265,145 per room**

August 21, 2016 – “Upon Completion” **\$ 136,800,000, or \$283,817 per room**

+10.7% INCREASE

August 21, 2017 – “Upon Stabilization” **\$ 159,900,000, or \$331,743 per room**

+25.1% INCREASE



1. Exploit the opportunity to use PACE as a financing structure wherever possible (Starting in California)
2. Identify financial partner and project management partners
3. Using broad energy data, identify a pilot portfolio of properties
4. Initiate Level 1 ASHRAE energy audits and evaluate results
5. Alignment of project scope with corporate goals (IRR, term, etc.)
6. Implement and commission energy projects within pilot
7. Measure and validate project performance as required
8. Reevaluate Pilot program
9. Launch broader energy program initiative based on the outcome of the pilot





The Hale Koa Hotel is an 817 room resort hotel located on 72 acres along Waikiki Beach. It is owned by the US Department of Defense and operates as an Armed Forces Recreation Center.

- HA funded a **\$679,000** investment in:
 - High efficiency heat pump water heaters to meet base load demand of hotel;
 - Piping, pipe insulation, and circulation pumps;
 - Additional hot water storage tank capacity; and
 - Automated controls for hot water system.
 - **10 year term**
 - Vendor = Hawaiian Electric Company
- | | |
|-----------------------------------|-------------------|
| Annual energy cost savings = | ~\$110,000 |
| Annual Debt Service Payment = | <u>\$93,000</u> |
| Immediate Annual Savings = | \$17,000 |
| Simple Payback = | 6.2 years |
| Savings over term = | \$170,000 |
| Ongoing Annual Savings = | ~\$110,000 |

Amount Financed	\$679,000
Annual Payment	-\$93,000
Months of Payments	120
Interest Rate	6.62%





Two million square foot Washington, DC headquarters of the GAO.

- HA Funded a **\$3,197,000** investment in:
 - New high efficiency hot water boilers.
 - Hot water pumps with high efficiency motors.
 - Piping and distribution systems.
 - Building automation controls for the boiler system.
- **5 year term**
- Vendor = Washington Gas

Annual Cost Savings = ~\$1,056,000
 Annual Debt Service Payment = \$692,000
Immediate Annual Savings = \$364,000
Simple Payback = 3 years

Savings over term = \$1,820,000
Ongoing Annual Savings = ~\$1,000,000

Amount Financed	\$319,7000
Annual Payment	-\$692,000
Months of Payments	60
Interest Rate	3.16%





Hannon Armstrong Overview



We provide capital, mostly senior debt, for profitable sustainable infrastructure projects

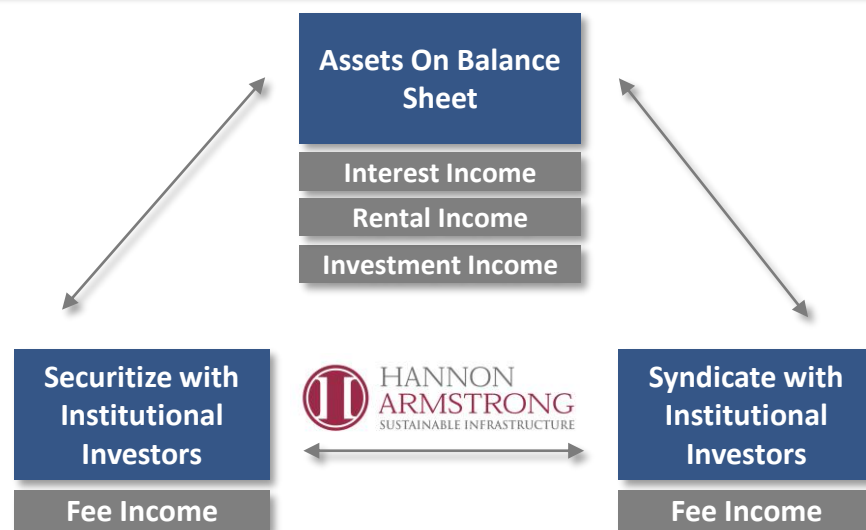
HASI
LISTED
NYSE

- Approximately \$1.0 billion transactions financed since the IPO
- High credit quality obligors
- \$2.2 billion assets under management
- 33 year-old firm, senior management team

Sustainable Infrastructure



How We Make Money



Transactions Closed Since IPO



Since it's April 2013 IPO, HASI Has Closed Almost \$1.0 Billion of Transactions...

